DIET AND NUTRITION STUDIES IN RURAL AREAS IN BOMBAY STATE.

By M. V. Radhakrishna Rao

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Government of Bombay

DIET AND NUTRITION STUDIES IN RURAL AREAS IN BOMBAY STATE

I. Sirur Health Unit, Sirur (District Poona)
II. Karjat Community Project Area (District Kolaba)

By

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DEPARTMENT OF NUTRITION, GOVERNMENT OF BOMBAY.

REPORT ON THE DIET AND NUTRITION STUDIES AT SIRUR HEALTH UNIT, SIRUR, DISTRICT POONA.

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REPORT ON THE DIET AND NUTRITION STUDIES AT SIRUR HEALTH UNIT, SIRUR (DISTRICT POONA), 1953-54.

1. Introduction :

The Director of Public Health has a Health Unit at Sirur, with 32 villages under its jurisdiction. The unit started its activities in 1939. The staff of the Unit consists of a Medical Officer of Health, a Lady Doctor, four Health Visitors and four Sanitary Inspectors.

In March 1953, the Director of Public Health suggested that the place (Unit area) would be very suitable for conducting nutritional studies. He further suggested that the Assistant Director in-charge of Department of Nutrition may undertake a preliminary survey for investigating the present nutritional status of the population, and the staff of the Health Unit would assist the Department in carrying out the actual survey work in the area of the Unit and that the Assistant Director should recommend a suitable policy and programme based on the findings of these studies, for the same area.

In September 1953, the Assistant Director in-charge Department of Nutrition paid a visit to the area, to discuss and initiate the nutritional studies at the Sirur Health Unit Area. A report on the visit and the preliminary studies on nutritional status, with suggestions for future plan of work, was submitted to the Government (Appendix A).

A detailed diet survey was then started towards the end of December 1953, to study the prevailing dietary habits or practices of the people and to assess the food intakes of the families. This was followed by a clinical nutrition survey in April 1954 to assess the nutritional status and common deficiency diseases of the people.

A report of this Diet and Nutrition Survey is given in the following pages.

2. Selection of families for the survey :

The number of families residing in the Sirur Health Unit Area is 1473—871 in the Municipal area and 602 in the Non-municipal area.

The authorities of the Health Unit have grouped these families in three groups according to the income of the family as given below :—

1. Income above Rs. 200 ... Well-to-do class (Rich).
2. Income above Rs. 100 and below Rs. 200. Middle class.
3. Income below Rs. 100 ... Ill-to-do class (Poor).

Table I gives the number of families in three economic groups as classified above and Table II gives the distribution of families according to the size of the family.

The diet survey was carried out by Smt. S. Udas, Senior Nutritionist and the nutrition survey, by Dr. V. N. Jai, Medical Officer. The statistical analysis of the data was carried out by Smt. K. Lotlikar, Statistician.

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It was decided to survey 196 families from the unit area as shown in Table III, so as to give a fair idea of the intake of foodstuffs for each class.

Out of these, 43 families were to be surveyed by the Senior Nutritionist of the Nutrition Department, during the period of about a month, while giving training to the Health Visitors for the Diet Survey work. Families were selected from the lists maintained by the Health Unit, Sirur, by the Senior Nutritionist on the spot, so as to have proportional number from each class. The Senior Nutritionist has actually surveyed 46 families (3·1 per cent.) from both Municipal and Non-municipal area.

In the Non-municipal area there are 12 *wadis* ; of these only 2 were selected, considering their location, population and distance from Ghodnadi, in consultation with the Medical Officer of the Unit. As the only two rich families in the Non-municipal area were not in these *wadis*, they could not be surveyed.

Out of the 46 families surveyed, 27 are from Municipal area and 19 are from Non-municipal area.

TABLE I.

Statement showing the number of families in the three economic groups.

Area.	Well-to-do class.	Middle class.	Ill-to-do class.	Total No. of families.
Municipal Area	42	192	637	871
Non-municipal Area	2	198	402	602
Total ...	44	390	1,039	1,473

TABLE II.

Statement showing the number of families according to the size of the family.

Size / Area.	Small (3 members or less).	Medium (4–6 members).	Large (7–9 members).	Very large (10 members or above).	Total No. of families.
Municipal Area ...	333	281	181	76	871
Non-municipal area ..	174	246	113	69	602
Total ...	507	527	294	145	1,473

Table III.

Statement showing the details of families to be surveyed.

Economic Condition.	Well-to-do.			Middle.			Ill-to-do.			Total.		
Area	1	2	3	1	2	3	1	2	3	1	2	3
Municipal Area ...	42	30	5	192	30	5	637	64	16	871	124	26
Non-municipal Area.	2	2	2	198	30	5	402	40	10	602	72	17
Total ...	44	32	7	390	60	10	1,039	104	26	1,473	196	43

1. Total No. of families in the area.
2. Number of families to be surveyed.
3. Number of families to be surveyed by the Senior Nutritionist only

Size of the family.	Small.			Medium.			Large.			Very large.		
Area	1	2	3	1	2	3	1	2	3	1	2	3
Municipal Area ..	333	48	10	281	40	8	181	25	5	76	11	3
Non-municipal Area ...	174	19	5	246	30	7	113	13	3	69	10	2
Total ..	507	67	15	527	70	15	294	38	8	145	21	5

In addition, three families were contacted, but were dropped later on, the reasons being (*i*) housewife of one family suffered from toothache, (*ii*) housewife of the other family was unwilling to give information because her family members had not sufficient food to satisfy their hunger and (*iii*) in the case of the third family, the housewife was not found at her residence at the time of collecting the data.

3. Method of the Diet Survey :

The collection of the data was by the "family" method. The raw food-stuffs were weighed and measured.

The families were visited twice during the day, at the time of preparation of meals and, as usual, foods consumed during the whole day, were weighed and measured.

The timings of the meals generally depend on the occupation of the earning members of the family. The earning members of the families from the municipal area were either cloth merchants, doctor, school teachers or labourers on daily wages. They used to take their food between 11 and 12 noon in the morning and 5-30 and 7-30 in the evening. These families were, therefore, visited in the morning between 8 and 11 and in the evening between 4 and 6-30.

The earning members of the families from non-municipal area are agriculturists, and are busy from the morning till evening. Therefore, these families were visited early morning between 7 and 10 and in the evening between 5 and 7-30.

Two different schedules were used for the two areas—urban and rural ; they are given as Appendices B and C.

During the period of survey, it happened sometimes that some members were absent for one or two meals or sometimes guests were present. In such cases the ages of the absentees and the guests were noted. In calculating the food intakes per c.u. per day, allowance has been made for these absentees and guests.

Similarly, some of the families had pet animals, such as dogs, cats, etc., while a few others gave food to cows, beggars etc. This was noted and deduction on this account in the total food taken was made.

Further, it was observed that there has been no plate waste in these families. As far as possible, food just sufficient for each meal is prepared, and left over, if any, from the first meal was consumed at the time of the second meal. No allowance for wastage has, therefore, been made in calculating the nutritive values of the diets of the families.

4. General Information about the Place and the People :

The Sirur Health Unit is situated in the South West corner of the Poona District, and is on Poona-Ahmednagar Bus Route. It is about 45 miles from Poona and 31 miles from Ahmednagar. Sirur Taluka is separated from Shreegonda and Parner Talukas of Ahmednagar District by the river Ghodnadi. Only 32 villages from Sirur Taluka are included in the Health Unit and are divided into four divisions.

There are 1,473 households with a population of 7,890 persons. Out of these, 871 households are situated in the Municipal area and 602 are situated in the Non-municipal area.

The average annual rainfall in this area is about 15 inches and generally famine conditions prevail in this area. Unfortunately, the Taluka is famine stricken for the last three successive years.

The staple crops are *bajra* and *jowar*. Wheat is also grown to some extent. Pulses such as *tur*, *chana*, *mug*, *matki* and *hulga* (horse gram) are also produced. Leafy vegetables such as *kardai*, *chuka*, *methi*, onion leaves and other

vegetables such as brinjals, beans of different varieties, white pumpkin etc. are available during season. The brinjals were the cheapest of all the vegetables. Potatoes, onions and garlic are the roots available ; occasionally, carrots were also available in the market. Sirur is known for fruits such as 'papayya', 'chiku', sweetlimes and oranges ; 'papayya' was particularly abundant, during the season.

Eggs were in plenty, being available at the rate of 12 per rupee, and these are exported from here. All the foodstuffs mentioned above, are available in the market held at Ghodnadi on Saturdays. It was reported that famine conditions have affected the production of foodstuffs.

In the municipal area, arrangements for tap water are made, but during summer months, water has to be fetched from the river Ghodnadi. The people from the non-municipal area draw well-water.

In the non-municipal area, the main occupation of the people is farming ; while in the municipal area the occupation of the people is varied from Doctors, School teachers, Cloth merchants, Drivers, Conductors and so on as would be expected in any small town.

5. Classification of families into economic groups :

The selection of the families has been done from the lists maintained by the Unit. However, as the economic condition of a family depends not only on the total income but also on the size of the family, these families were regrouped on the basis of the actual data collected during the survey, as follows :—

For the Municipal Area.

Group I.—Families with income of Rs. 50 and above per c.u. per month.

Group II.—Families with income of Rs. 25 and above but less than Rs. 50 per c.u. per month.

Group III.—Families with income of less than Rs. 25 per c.u. per month.

For the Non-municipal Area.

Group I.—Land owned by the family of about 20 acres and income from other sources.

Group II.—Land less than 20 acres and general observations during survey.

The number of families in each group as classified above, the number of persons covered, the average consumption units per family and the number of earning members in each group are given in Table IV.

The number of children and adults, males and females in the five groups and the distribution of earning members according to sex, are shown in Table V.

The total number of persons covered by the survey is 305 and the average consumption units per family is 5·3. The number of earning members is 89, out of which 62 are males and 27 are females.

The number of consumption units per family is 4·9 in case of municipal families and 5·9 c. us. in case of non-municipal families.

Out of the 46 families surveyed, 27 are from municipal area and 19 are from non-municipal area. The families are Hindus, Jains and Muslims; and the languages spoken are Marathi, Marwari and Urdu. The number of families from each group are given in Table VI.

Table IV.

Statement showing the number of families, the consumption units, earning members, etc.

Area	Economic Group.	No. of families.	No. of persons.	Total No. of Consumption Unit.	No. of C. Us. per family.	No. of earning members. M.+F.
Municipal Area.	Rich I.	6	53	44·7	7·5	10
	Middle II.	11	53	41·3	3·8	12
	Poor III.	10	57	45·8	4·6	12 + 2
	Total.	27	163	131·8	4·9	34 + 2
Non-municipal Area.	Middle 1.	11	91	71·7	6·5	19 + 15
	Poor II.	8	51	40·4	5·1	9 + 10
	Total.	19	142	112·1	5·9	28 + 25
	Grand total.	46	305	243·9	5·3	62 + 27

Table V.

Statement showing the number of adults and children according to sex in the different economic groups.

		Children under 14 yrs.		Adults.		Total.		Earning members.	
		M.	F.	M.	F.	M.	F.	M.	F.
Municipal Area.	Rich I.	9	12	18	14	27	26	10	–
	Middle II.	12	10	16	15	28	28	12	–
	Poor III.	16	13	14	14	30	27	12	2
	Total.	37	35	48	43	85	78	34	2
Non-municipal Area.	Middle I.	21	19	27	24	48	43	19	15
	Poor II.	10	13	12	16	22	29	9	10
	Total.	31	32	39	40	70	72	28	35
	Grand Total.	68	67	87	83	155	150	62	37

Table VI.

Statement showing the number of families of various communities, languages spoken, vegetarian, non-vegetarian, etc.

Community.	Language.	Municipal Area.			Total.	Non-municipal Area.		Total.
		I	II	III		I	II	
Hindu, Vegetarian.	Marathi.	2	4	6	12	–	–	–
Do. Non-Vegetarian.	Marathi.	–	3	4	7	11	8	19
Do. Vegetarian.	Marwari.	2	–	–	2	–	–	–
Jain, Vegetarian.	Marwari.	2	2	–	4	–	–	–
Muslim, Non-vegetarian.	Urdu.	–	2	–	2	–	–	–
	Total.	6	11	10	27	11	8	19

6. Results of the Dietary Studies :

Average Diets.

(*a*) The average intake of each class of foodstuffs per c.u. per day, for each family have been calculated from the seven days, dietary data collected by the Senior Nutritionist during her visits to the families. These are shown in Appendix D along with other information. The avarage diets of each family have been analysed for their nutritive values and the nutrient analysis of the diets of the individual families are also shown in Appendix D.

From these values for the average intake of foodstuffs for each family, the average for the families residing in the municipal area and the families residing in the non-municipal area, have been calculated to give an estimate of the urban and rural diets of this area. These diets are shown in Table VII. The table also gives the standard deviation of the respective average values of foodstuffs and the levels of intake recommended by the Nutrition Advisory Committee of the Indian Council of Medical Research in November 1944. The maximum and minimum values observed in case of each item of foodstuffs have also been given, to indicate the variation in the average intake values.

The average diets, both for municipal area and non-municipal area are far from satisfactory. The average intake of all items are below the recommended level in case of diets in municipal area ; while in case of non-municipal area, the intake of all items except cereals and pulses are below the recommended level.

The consumption of cereals in the municipal area was limited by the rationed quota. The cereals like *jawar* and *bajra* were decontrolled in the last week of January 1954. However, the majority of the families were surveyed before this and hence the average consumption for the area is 11·4 ozs. per c.u. per day. This is well comparable with the average value for the cereal consumption of the D-ward families in Bombay City surveyed in 1950-51, which was also influenced by the rationed quota of cereals.

In the rural area, the consumption depends mostly on what the farmer has produced. A significant increase of nearly 10·0 ozs. per c.u. per day is observed in the diets of the non-municipal area over those in the municipal area.

Table VIII shows the differential consumption of foodstuffs in the families. The families have been divided into—

(1) Those *not* consuming any particular foodstuff.

(2) Those consuming particular foodstuff with the average intake *below* the desired level, and

(3) Those consuming particular foodstuff with the average intake *upto* the desired level and *above*.

TABLE VII.

Statement showing for the Municipal and the Non-municipal area—average diets, standard deviation, maximum and minimum values for each item of foodstuff and the diet recommended by the I. C. M. R.

Foodstuffs.	Balanced Diet recommended by I. C. M. R. (in ozs.)	Municipal Area.				Non-municipal area.			
		Average Diet. (in ozs.)	Standard Deviation.	Maximum value observed (in ozs.)	Minimum value observed (in ozs.)	Average Diet quantity (in ozs.)	Standard Deviation.	Maximum value observed (in ozs.)	Minimum value observed (in ozs.)
Rice	.....	1·1	0·95	3·2	.....	0·04	0·16	0·7	.....
Wheat	.....	2·0	3·38	16·6	.....	0·3	0·47	1·8	.....
Jowar	.....	3·2	4·02	14·8	.....	7·7	8·49	23·7	.....
Bajra	.....	5·1	4·05	15·0	.....	13·8	10·42	32·5	.....
Total cereals	14·0	11·4	3·28	20·9	7·7	21·8	8·19	39·0	9·0
Pulses	3·0	2·0	1·25	5·9	0·3	3·4	2·17	8·9	0·3
Leafy vegetables... ...	4·0	0·4	0·51	2·0	.....	0·2	0·30	1·1	.....
Root do.	3·0	1·1	1·08	4·9	.....	0·9	0·73	2·3	.....
Other do.	3·0	1·2	1·07	5·5	.....	0·8	0·51	1·8	.....
Fruits	3·0	0·7	1·54	7·7	.....	0·1	0·21	0·5	.....
Sugar and Jaggery ...	2·0	1·6	0·27	3·6	0·2	1·4	0·94	3·5	.....
Vegetable oils and fats ...	2·0	0·5	0·53	2·5	0·1	0·3	0·19	0·8	0·1
Butter and ghee ...		0·2	0·38		.....	Tr.	0·08	0·3	.....
Milk and milk products ...	10·0	8·1	5·14	18·8	0·6	2·5	2·60	7·7	.....
Fish	3·0	.....	.....	0·1	.....	0·1	0·19	0·3	.....
Meat		0·1	0·37	1·6	.....	.....	.....	.....	.....
Eggs	1·5	Tr.	.....	0·4	.....	Tr.	0·08	0·3	.....
Groundnuts	.....	0·4	0·52	2·4	.....	0·6	0·86	3·0	.....
Other foods	.....	0·2	0·44	1·1	.....	0·2	0·36	1·4	.....
Condiments	.....	0·2	0·02	0·8	.....	0·3	0·23	0·9	0·1

Tr. = Trace.

Table VIII.

Statement showing the differential consumption of foodstuffs in the families surveyed.

Classes of foodstuffs.	Quantity recommended by I. C. M. R. (in ozs.)	Municipal Area.						Non-municipal Area.					
		No. of families not including particular foodstuff in their diets.		No. of families including particular foodstuff in their diets.				No. of families not including particular foodstuff in their diets.		No. of families including particular foodstuff in their diets.			
				Below desired level.		To desired level and above.				Below desired level.		To desired level and above.	
		No.	Percentage	No.	Percentage	No.	Percentage	No.	Percentage	No.	Percentage	No.	Percentage
Cereals ...	14	...	...	21	78	6	22	...	...	4	21	15	79
Pulses ...	3	...	...	24	89	3	11	...	...	8	42	11	58
Leafy vegetables	4	4	15	23	85	...	...	8	42	11	58	...	...
Root do.	3	3	11	22	82	2	7	6	32	13	68	...	...
Other do.	3	2	7	23	85	2	7	1	5	18	95	...	...
Fruits ...	3	14	52	12	44	1	4	17	89	2	11	...	...
Sugar and Jaggery	2	...	...	18	67	9	33	2	11	15	78	2	11
Oils and fats	2	...	...	26	96	1	4	...	...	19	100	...	...
Milk and Milk-products.	10	...	...	17	63	10	37	4	21	15	79	...	...
Fish and Meat	3	23	85	4	15	...	...	11	58	8	42	...	...
Eggs ...	1·5	26	96	1	4	...	...	16	84	3	16	...	...

It will be seen from this table that only 25 per cent. families from the municipal area show adequate intake of cereals and 33 per cent. families show adequate intake of sugar and jaggery and milk. Only 10 per cent. of the families show adequate intake of pulses in this area. For all other items, the number of families with adequate intake is either very small or nil. In the non-municipal area, 80 per cent. and 60 per cent. of the families show adequate intake of cereals and pulses respectively: only 10 per cent. of the families show adequate intake of sugar and jaggery. For all other items there are no families showing adequate intake in this area.

The families in the municipal area have been grouped in three economic groups while those in the non-municipal area have been grouped in two as already mentioned. The average diets of these five groups were calculated and these have been shown in Table IX.

The general observation that the intake of *protective* foods increases with the increase in income is confirmed by the findings of this survey as can be seen from the figures in Table IX, for the groups, both in the municipal area as well as the non-municipal area.

The diets of the families in rural (non-municipal) area are heavier in cereal and pulse intake and add to the calorie content of the diets. As the families are mostly agriculturists-active workers, their requirements are also greater than those of the sedentary workers of municipal area.

Another salient feature of the survey is that in the municipal area, milk is cheap and those who can afford include it freely in their diets. Hence, the consumption is as high as 14·1 oz. in the economic group I and 8·0 ozs. per c. u. per day in the economic group II. Even in the poor families group III the consumption is 4·6 ozs. per c. u. per day. This, however, is possible because of the free distribution of skim milk in this area. In addition, there are some Mission Centres which distribute milk powder to poor.

Table IX.

Statement showing the average diets of the five groups in the Sirur Health Unit Area.

Foodstuffs.	Balanced Diet recommended by I. C. M. R. in ozs.	Average Diet per C. U. per day (in ozs.)				
		Municipal area economic group.			Non-municipal area economic group.	
		I.	II.	III.	I.	II.
Rice	14·0	1·8	1·4	0·3	0·1	...
Wheat		3·2	3·0	0·2	0·4	0·1
Jowar		2·7	2·3	4·4	9·0	6·0
Bajra		3·0	5·7	5·8	16·6	9·8
Total cereals		10·7	12·4	10·7	26·1	15·9
Pulses	3·0	1·9	1·8	2·2	2·9	4·0
Leafy vegetables ...	4·0	0·4	0·2	0·7	0·3	0·2
Root do. ...	3·0	1·7	1·3	0·5	1·0	0·7
Other do. ...	3·0	2·0	1·1	0·9	0·8	0·8
Fruits ...	3·0	0·7	1·2	0·2	0·1	...
Sugar and Jaggery ...	2·0	2·3	1·7	1·1	1·7	0·9
Oils and Fats ...	2·0	0·7	0·6	0·3	0·4	0·2
Butter and ghee ...		0·6	0·1	Tr.	Tr.	...
Milk and milk products ...	10·0	14·1	8·0	4·6	3·4	1·1
Fish	3·0	...	...	Tr.	0·1	0·1
Meat		...	0·2	...	...	...
Eggs	1·5	Tr.	...	...	Tr.	Tr.
Groundnuts	...	0·5	0·4	0·2	1·0	0·1
Other foods	...	0·2	0·3	0·1	0·2	0·2
Condiments	...	0·1	0·2	0·2	0·3	0·3

Tr. = Trace.

TABLE X.

Statement showing the average values for the nutrients for the different groups.

Nutrient.	Nutrient Intake recommended by I. C. M. R.	Municipal area.			Municipal area (Average Diet).	Non-municipal area.		Non-municipal area (Average Diet).
		I.	II.	III.		I.	II.	
Total proteins (g)	82	68·6	65·8	55·4	62·6	116·2	81·1	101·4
Animal proteins (g)	16–27	16·7	10·6	4·8	9·8	4·9	2·0	3·7
Fats (g) ...	85*	73·7	52·0	27·1	47·6	58·7	27·7	45·6
Carbohydrates (g)	350*	356·5	354·1	296·2	333·2	629·9	417·6	540·5
Calcium (g) ...	1·00	1·11	0·80	0·61	0·80	0·80	0·70	0·76
Phosphorus (g) ...	.....	1·65	1·63	1·42	1·56	3·10	2·11	2·68
Iron (mg.) ...	20–30	28·6	32·2	32·8	31·6	70·6	48·1	61·1
Vitamin A (I. U.)	3,000 –4,000	2,356	1,852	1,842	1,961	2,455	1,520	2,061
Vitamin B1 (I. U.)	333–666	586	552	396	502	1,022	552	824
Vitamin C(mg.) ..	50	44	34	27	33	18	17	18
CALORIES ...	2,400 –3,000	2,363	2,153	1,651	2,014	3,512	2,244	2,978

* Approximate requirements for a balanced diet.

In the non-municipal area, the consumption largely depends on the supply of milk from domestic buffaloes. The consumption is, therefore, restricted and not satisfactory in this area.

The average values of the nutrients for the five groups and the average diets for municipal area and non-municipal area are shown in Table X.

The average values for the nutrients for the municipal area diet are all below the recommended level except for iron and vitamin B1. In the case of non-municipal area the average values of animal proteins, fats, calcium, vitamin A and vitamin C are all below the recommended level.

The average values for nutrients show gradual increase with the increase in economic status, just as in the case of protective foods, as can be seen from Table X. These are also graphically represented in Figure 2.

The average value for the iron content of the diets is higher than the recommended level in all the groups, more so in the non-municipal groups. The high values are mainly due to the high consumption of cereals ; the contribution from vegetables and fruits is very small.

Although many of the families are non-vegetarian, very few families consume fish, meat or eggs regularly.

On the whole, the diets are unsatisfactory as the intake of *protective* foods like vegetables, fruits, fish, meat and eggs are low. In the rural area and in the lower economic groups of municipal area, the intake of milk is also low.

(*b*) *Foodstuffs.*

Cereals.—The staple articles in the diet are *bajra* and *jowar*. Rice and wheat are consumed mostly by the rich and middle class families. The families from the non-municipal area consume rice and wheat on festivals. However, a few families from the non-municipal area prepared gruel out of wheat daily in the morning. The wheat is soaked in water overnight; on the next day morning, it is ground to paste and the stuff is kept for 24 hours. It is then cooked with a little of milk, sugar and ghee. It is generally consumed by the male members and children in the family. A few families gave sago gruel, dried dates and cocoanut to children.

Generally, *bajra* is consumed during winter and *jowar* in summer. Other foodstuffs, such as *wari*, sago, etc., are consumed on fast days.

The cereals were decontrolled during the period of survey.

Pulses.—Pulses such as *tur, chana, matki, hulga*, etc., which are produced here, are consumed. The well-to-do and middle class families from municipal area consume pulses such as *tur, mug, chana* etc. *Mug* and *matki* are generally sprouted; however, the Jain families do not sprout the pulse. They consumed the pulses in the form of *papad*. These *papads* are prepared from *mug, matki* or *udid* flour. These are either fried or roasted.

Horse-gram (*kuleeth* or *hulga*) is produced in this area and is cheap compared to cereals and is consumed mostly by the poor class families. *Bhakar* is made out of its flour or it is combined with jowar. The other preparations known as 'shingolya' and 'divshi' of this pulse are also prepared.

It was reported by the families that they had to consume horse-gram because of famine conditions, otherwise this is used for cattle feeding. The consumption of other pulses such as *tur, chana, mug* etc. is negligible in case of poor families.

Leafy vegetables.—Leafy vegetables such as *kardai, chuka, methi* and onion leaves are available during the season. A few familes used dried *chana* leaves. The vegetables are available in the weekly markets. The families could not purchase more of these, even though cheap, as these go stale and have to be used when fresh.

Roots and Tubers.—The commonly consumed roots and tubers are potatoes and onions. The poor families used onion as a condiment; the onion is roasted in the fire and then ground along with the other condiments. The condiments are used for the preparation of 'usal', fish soup, etc.

Other vegetables. Other vegetables such as beans, brinjals, white pumpkin, etc., were consumed. The brinjals were the cheapest of all the vegetables.

Fruits.—Fruits such as papayya, sweet lime, oranges, bananas were consumed to some extent by the well-to-do and middle class families.

Sugar and Jaggery. - The families from rich and middle class use sugar for the tea and *gur* in the preparation of vegetables, while poor families use *gur* for tea.

Vegetable Oil.—Pure *kardai* oil is consumed by all the classes. However, the amount used varies. In addition to this oil, families from rich and middle class consume butter and ghee. The consumption of oil is very unsatisfactory in case of poor class families.

Milk and milk products.—Milk of good quality is available at Ghodnadi at the rate of As. 10 per seer. There is also a reconstituted skim milk distributing centre and a few families take advantage of this. The milk consumed is either of cow, goat or buffalo.

The families from the non-municipal area, consume milk, either of cows, buffaloes or of goat. It is interesting to know that these families some time add water to the milk, to increase the quantity of the milk, to make it sufficient for the children.

Fleshy foods and eggs.—Even though every family from the non-municipal area possessed poultry, very few of them were found consuming eggs. The eggs were sold in the market and in return, foodstuffs such as oil, vegetables etc. are purchased. Dried fish and fresh fish and meat are also consumed, but in small quantities. The consumption is also not regular.

Groundnuts.—Groundnuts are produced in this area, and are consumed in fair proportion by the families from all the groups.

Other foods.—Puffed rice, green *chana*, sugar cane, berries, *pedhas*, *jilebi*, etc., were consumed by some family members outside the home. As these could not be weighed, these are not included in the data collected. A few families consume betel leaves ; these were noted and icluded in the data.

(c) *Nutrients.*

Proteins.—The intake of total proteins in all the three economic groups of the municipal area is below the recommended level, more so in the poor group. In the non-municipal area groups the intakes are satisfactory. This is mainly due to the higher consumption of cereals and pulses.

The intake of animal proteins is up to the recommended level in group I of municipal area, fairly satisfactory in group II of municipal area and far below the recommended level in group III of municipal area and both the groups in the non-municipal area.

It is thus seen that although the quantity is sufficient, quality of proteins is not satisfactory in the non-municipal area. The families are all non-vegetarian and should be induced to take more of fleshy foods.

Fats.—The intake of fats is below the recommended level in all the five groups. However, it is fairly satisfactory in group I (Rich) of municipal area. In the middle class groups of municipal and non-municipal areas, the intake is only two-thirds of the recommended amount and in the poor class groups of both the areas it is hardly a third of the recommended allowance.

Crabohydrates.—The intake of carbohydrates is satisfactory in all the groups except the poor class group of the municipal area.

Calcium.—The intake of calcium is up to the recommended level in group I of the municipal area. In all other groups the intake is below the recommended level. Phosphorus intake is between 1·4 to 3·1 g. per c. u. per day.

Iron.—The intake of iron is satisfactory in all the groups and far in excess of the recommended allowance, in the non-municipal area due to high cereal consumption.

Vitamin A.—The intake of vitamin A is low in all the five groups. This is due to the low intake of both fresh vegetables and fruits.

Vitamin B1.—The intake of vitamin B1 is satisfactory in all the five groups.

Vitamin C.—The intake of vitamin C is low in all the groups specially in the poor group of municipal area and both the non-municipal groups.

Calories.—The intake of calories is sufficient in group I of the municipal area and group I of the non-municipal area. In all other groups they are below the requirements.

7. Results of the Nutrition Survey :

(a) General.

In April 1954, a "rapid" clinical nutrition survey of 34 families, which were surveyed for dietary data, and of representative school children from the unit area, was carried out by the Medical Officer, to assess the nutritional status of the population of the unit area. The Schedule used for the purpose is given as Appendix E.

(b) Survey of families.

Out of the 46 families covered by the diet survey in Sirur Health Unit Area, members of 34 families were clinically examined. The distribution of these families in the municipal and the non-municipal areas, economic groups, number of persons in each group etc. as shown in Table XI.

Economic Group and Nutritional Status.—The number of persons examined is 146. The distribution of these persons in the three grades of nutritional status within each economic group in municipal and non-municipal area is shown in Table XII.

The nutritional status in general is not very satisfactory. There are 53 per cent. persons in grade I, 45 per cent. in grade II and only 2 per cent. in grade III of the nutritional status. Thus, every second person is undernourished requiring better attention to raise them to the accepted standards of health and physique. There are 3 children—2 from municipal area and one from non-municipal area, in grade III. They require immediate attention as far as their food and dietetic intake is concerned in order to prevent further deterioration in their present lowered nutritional status.

It is observed that the nutritional status of persons improve with better economic conditions in both the municipal as well as the non-municipal area. The percentage of persons in grade I decreases from 79 per cent. to 23 per cent. from the higher economic group I to the lower economic group III in the municipal area and the difference observed is definitely significant ($X^2 = 39{\cdot}02$, $n = 4$). Whereas the percentage of persons in grade I decreases from 53 per cent. to 43 per cent. from group I to group II in the non-municipal area. However, the difference is not significant ($X^2 = 2{\cdot}14$, $n = 2$).

Table XI.

Statement showing the number of families and persons covered by the Diet Survey and by the Nutrition Survey.

Area.	Economic group.	Diet Survey.		Nutrition Survey.	
		Number of families.	Number of persons.	Number of families.	Number of persons.
Municipal area ...	I	6	53	6	33
	II	11	53	6	24
	III	10	57	6	21
	Total ...	27	163	18	78
Non-municipal area ...	I	11	91	10	47
	II	8	51	6	21
	Total ...	19	142	16	68
Grand Total ...	...	46	305	34	146

Table XII.

Statement showing the distribution of persons in the three grades of nutritional status in the five economic groups.

Area.	Number of Economic group.	Number of persons examined.	Grade I No.	Grade I Percentage.	Grade II No.	Grade II Percentage.	Grade III No.	Grade III Percentage.
Municipal area ...	I	33	26	79	7	21	...	...
	II	24	13	54	11	46	...	...
	III	21	5	23	14	67	2	10
	Total ...	78	44	56	32	41	2	3
Non-municipal area.	I	47	25	53	22	47	...	...
	II	21	9	43	11	52	1	5
	Total ...	68	34	50	33	48	1	2
Grand Total	...	146	78	53	65	45	3	2

The nutritional status of persons in municipal area appear to be better than those in the non-municipal area. But the difference is not significant and may well be due to chance ($X^2=0\cdot96$, n=2).

Nutritional status of adults and children:—Out of the 146 persons examined, 77 are children, 23 adult males and 46 adult females.

Out of 23 males, 22 are in grade I and only 1 in grade II of nutritional status. 29 females i.e. 63 per cent. are in grade I and 17 i.e. 37 per cent. are in grade II. While out of 77 children only 27 i.e. 35 per cent. are in grade I, 47 i.e. 61 per cent. are in grade II and 3 i.e. 4 per cent. are in grade III.

Thus the nutritional status of males is better than both females and children; that of females is better than that of children. This trend is observed in all the economic groups.

Table XIII gives the incidence of deficiency signs in persons in grade II. There is only one adult male in grade II, without any symptom of deficiency.

It will be seen from the Table that the main deficiency sign observed in children in grade II is deficient subcutaneous fat-79 per cent. and 82 per cent. of children

respectively, in the municipal and the non-municipal areas. In addition, 25 per cent. children in the non-municipal area, also show dry skin. The other symptoms observed in children (one or two) are poor musculature, mild anaemia, Bitot's spots and dental caries. The symptoms are mainly indicative of fat and vitamin A deficiency and this is well corroborated by the diet survey findings.

In adult females in grade II, the main symptom is mild anaemia, 75 per cent. and 100 per cent. in the municipal and the non-municipal areas respectively. The other symptoms are deficient subcutaneous fat, Bitot's spots and dental caries (one or two cases each). Thus the main symptom indicates an iron deficiency. However, from the dietary data it is observed that even in the lowest income group, the iron intake is more than the recommended level. The source of this dietary iron is, however, mainly cereals. There may be other reasons, as this is mainly in women, such as repeated pregnancies, etc.

Table XIII.

Statement showing the incidence of deficiency signs amongst children and female in grade II.*

Signs.	Municipal area.				Non-municipal area.			
	Children (11)		Adult Females (12)		Children (28)		Adult Females (5)	
	No.	Percentage.	No.	Percentage.	No.	Percentage	No.	Percentage.
Nil. ...	...	...	2	17	2	7	...	...
Poor musculature ...	1	5	...	...	...	...	...	...
Deficient subcutaneous fat ...	15	79	1	8	23	82	...	...
Mild anaemia ...	2	11	9	75	...	...	5	100
Xerosis of conjunctivae ...	...	...	...	...	1	4	...	...
Bitot's spots ...	2	11	1	8	...	...	...	...
Dental caries ...	...	...	1	8	1	4	...	...
Dry skin ...	1	5	...	...	7	25	...	...

*There is only one adult male in grade II and he showed no deficiency sign.

TABLE XIV.

Statement showing the total number and the number examined of boys and girls in different schools.

	Name of the School.	Total number.			Number examined.			Age range.
		Boys.	Girls.	Total.	Boys.	Girls.	Total.	Years.
	Municipal area.							
	Boys Schools.							
1.	Primary Boys School	481	...	481	210	...	210	6–22
	Girls Schools.							
2.	Government Certified school for girl. ...	58		58	...	57	57	6–18
3.	Primary Girls' School	288		288	...	149	149	6–17
	Mixed Schools.							
4.	Vidya Dham High School ..	164	18	182	86	7	93	10–21
5.	Jain School	35	38	73	20	23	43	6–14
6.	Urdu School	67	66	133	45	39+3	87	6–17
	Total ...	747	468	1,215	361	275+3	639	6–22
	Non-municipal area.							
7.	Primary School at Tardobachi Wadi.						24	
	Grand Total ...						663	

The three children in grade III showed following signs—

Deficient subcutaneous fat	2
Xerosis of conjunctivae	1
Bitot's Spots	2
Dry skin	3
Marked anaemia	1

Thus it is seen that here also fat and vitamin A deficiencies are the main deficiency states.

(c) *Survey of school children.*

In addition to the 34 families examined, 663 children from seven schools in this area were examined. The name of the school, date of examination, number of boys and girls examined etc. are given in Table XIV.

Out of these, six schools are in the municipal area and one is in the non-municipal area.

The total strength of the six schools in the municipal area is 1,215. Out of these, 639 i.e. 53 per cent. were examined. From the only non-municipal school, 24 children were examined.

The distribution of children in the three grades of nutritional status in each school is shown in Table XV. It will be seen from this Table that out of the 663 children examined, 203 i.e. 31 per cent. are in grade I, 454 i.e. 68 per cent. are in grade II and 6 i.e. 1 per cent is in grade III of nutritional status. Thus, two out of every three children are undernourished and need better attention to raise them to the accepted standards of health and physique. Only six children—all in the non-municipal area, are in grade III. They require immediate attention as far as their food and dietetic intake is concerned, in order to prevent further deterioration in their present lowered nutritional status.

It will be further observed from the same table that the nutritional status of girls in the Government Certified School for Girls is much better than other schools, with 72 per cent. in grade I. Next to this, come Primary Girls' School, Vidya Dham High School and Jain High School with 33 per cent. to 41 per cent. i.e. nearly 1/3rd of the children in grade I. The remaining three schools—Primary School for Boys, Urdu School and Primary School at Tardobachi wadi (the school in the non-municipal area) show high degree of malnourishment with only 13 per cent. to 21 per cent. in grade I of nutritional status.

TABLE XV.

Statement showing the distribution of children in the three grades of nutritional status.

Name of the School.	Number of children examined.	Grade I		Grade II		Grade III	
		No.	Percentage.	No.	Percentage.	No.	Percentage.
1. Primary Boys School ...	210	45	21	164	78	1	1
2. Government Certified School for girls.	57	41	72	16	28	...	...
3. Primary Girls School ...	149	49	33	98	66	2	1
4. Vidya Dham High School ...	93	38	41	55	59	...	...
5. Jain High School	43	15	35	28	65	...	...
6. Urdu School	87	12	14	72	83	3	3
7. Primary School at Tardobachi wadi.	24	3	13	21	87	...	...
Total ...	663	203	31	454	68	6	1

TABLE XVI.

Statement showing the incidence of deficiency signs in Grade II.

Symptom	Number of children.	Percentage in grade II.
Poor musculature	6	1
Deficient subcutaneous fat	308	68
Mild Anaemia	1	.....
Xerosis of conjunctivae	29	6
Bitot's spots	16	4
Dental caries	84	18
Dry skin	22	5

The main deficiency sign is deficient subcutaneous fat-68 per cent; next comes dental caries-18 per cent. The remaining signs present are poor musculature, xerosis of conjunctivae, Bitot's spots and dry skin from 1 per cent. to 6 per cent. There is only one case of mild anaemia. Thus it will be seen that the main deficiencies in these children also are fat and vitamin A deficiencies.

Thus from the two nutrition surveys it can be seen that nearly two-thirds of the children in this area are malnourished and need attention to raise them to the accepted standards.

8. Summary :—

A diet and nutrition study was conducted in the Sirur Health Unit Area by the Department of Nutrition in 1953–1954.

A total number of 46 families were surveyed. Out of these, 27 were from the municipal area and 19 were from the non-municipal area.

The families from the municipal area have been grouped in three economic groups and those from the non-municipal area in two economic groups.

The average diets are not satisfactory being low in *protective* foods. The general observation that the intake of *protective* foods increases with increase in economic status, is confirmed. The diet of the people in the non-municipal area is heavier in cereals and pulses than that of the non-municipal area.

The consumption of milk is fairly satisfactory in group I and group II of the municipal area.

In general, the average values of the nutrients are all below the recommended level, except for iron and vitamin B_1.

A nutrition survey of 34 families (146 persons) and seven schools (663 school children) was carried out in April 1954.

The nutritional status of the families examined is not very satisfactory. Men are better nourished than women and women are better nourished than children. On the whole, two-thirds of the children from this area (both families and schools) are malnourished.

The main deficiency symptoms are due to lack of fat and vitamin A such as deficient subcutaneous fat, dry skin, xerosis of conjunctivae etc.; and in women, also iron deficiency.

The diet survey findings also corroborate these findings and the families need improvement in their diets as regards the intake of fats and *protective* foods.

9. Recommendations :

(1) Ameliorative Measures.

(*a*) In view of the low intake of vitamin A and the prevalence of hypovitaminosis A, particularly amongst children, it is suggested that one tablet each of vitamin A-D and vitamin B-C (prepared by the Haffkine Institute, Bombay) may be distributed to the undernourished children and the expectant and nursing mothers in the entire health unit area, under medical supervision.

(*b*) In view of the gereralised undernourishment amongst school children, the school authorities should attempt to secure skin milk powder for distributing at least to the undernourished children.

(2) Educative Measures.

The Health Visitor during their domiciliary visits should try to educate the family members by impressing upon them, the usefulness of 'protective foods' such as leafy vegetables, eggs, milk and others in the diet.

(3) Intensive Studies.

Now that the Health Visitors are trained in the technique of diet survey, more information may be collected about the dietary intake and the dietary habits of expectant and nursing mothers in the unit area.

Secondly, a similar survey as the one conducted in 1953 54, may be carried out in another division of the unit area by the Health Visitors and the Medical Officer of the Unit.

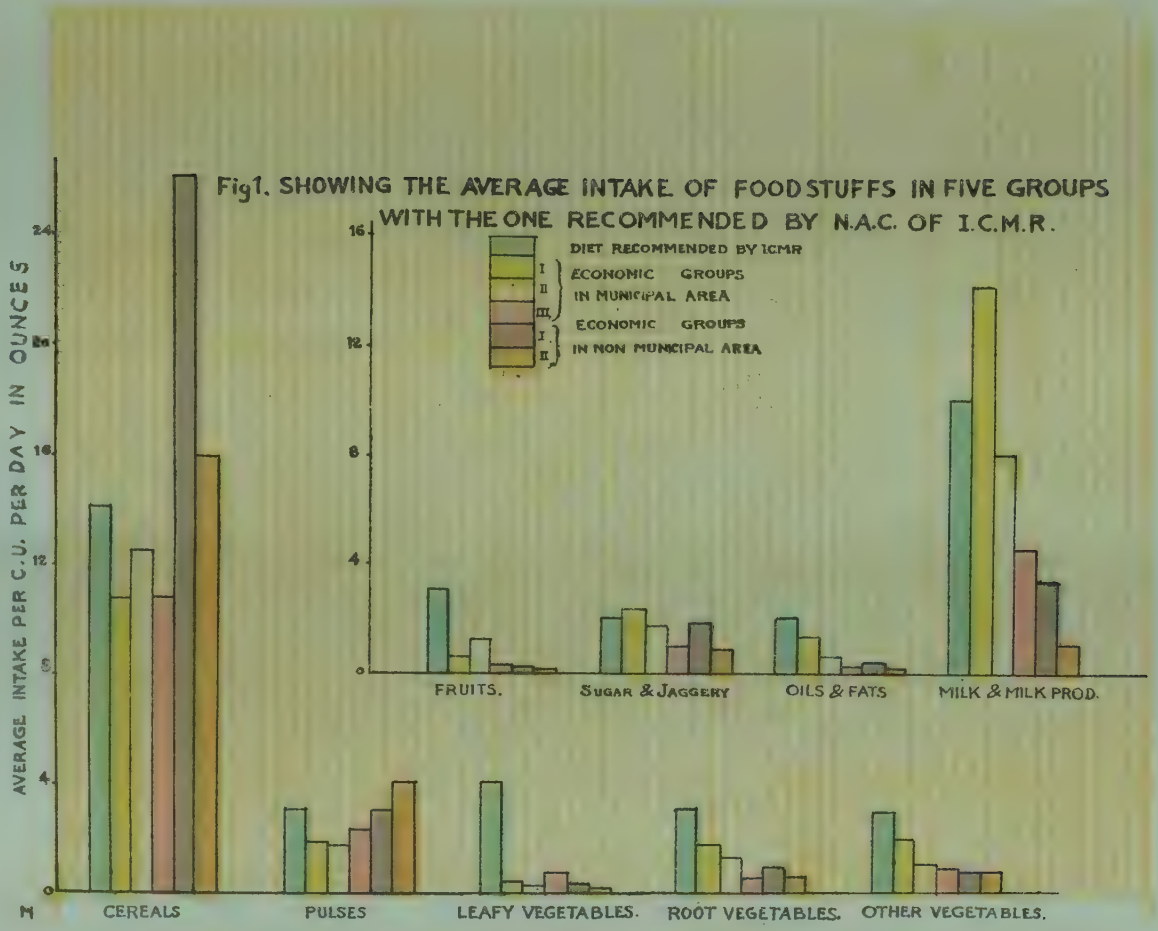
Fig1. SHOWING THE AVERAGE INTAKE OF FOODSTUFFS IN FIVE GROUPS WITH THE ONE RECOMMENDED BY N.A.C. OF I.C.M.R.
AVERAGE INTAKE PER C.U. PER DAY IN OUNCES
DIET RECOMMENDED BY ICMR
ECONOMIC GROUPS IN MUNICIPAL AREA
I
II
III
ECONOMIC GROUPS IN NON MUNCIPAL AREA
I
II
CEREALS
PULSES
LEAFY VEGETABLES.
ROOT VEGETABLES.
OTHER VEGETABLES.
FRUITS.
SUGAR & JAGGERY
OILS & FATS
MILK & MILK PROD.

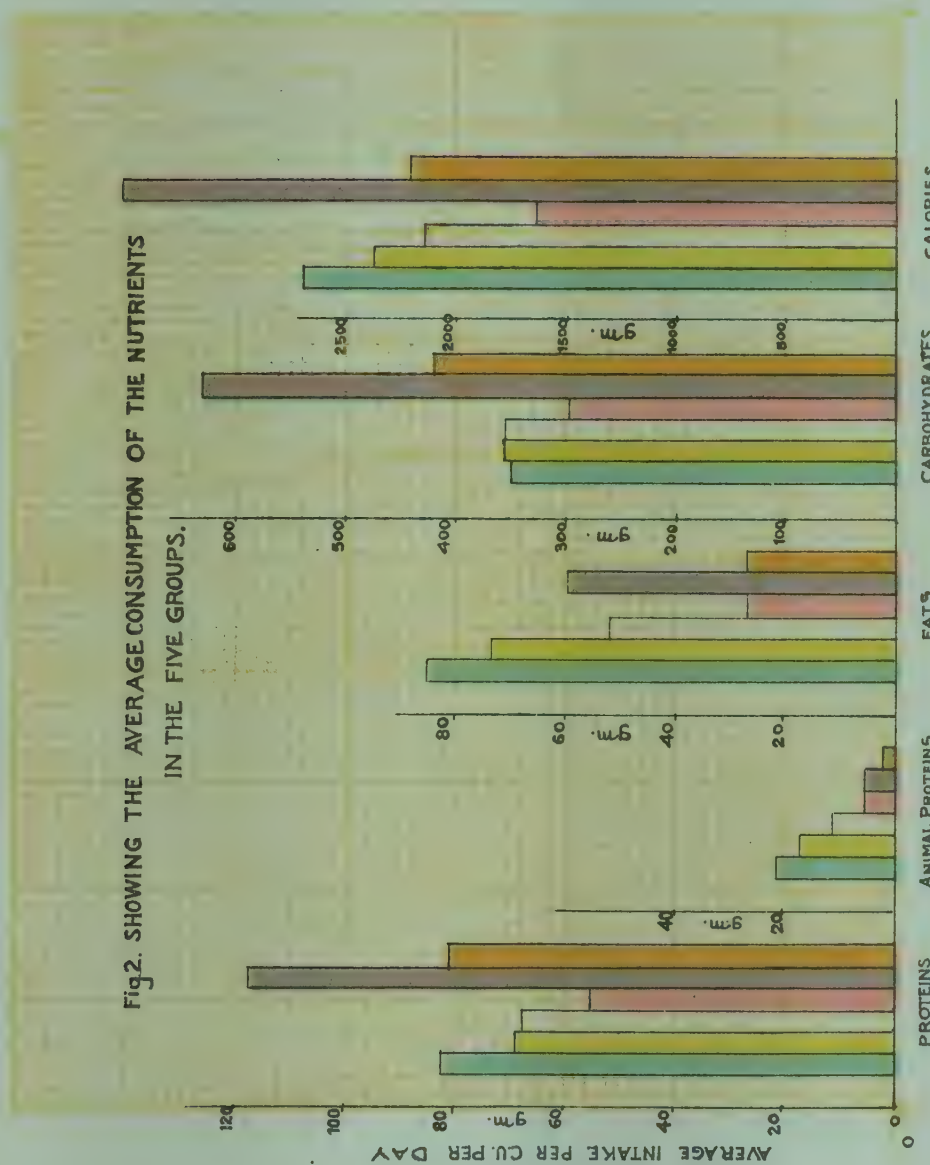

Fig2. SHOWING THE AVERAGE CONSUMPTION OF THE NUTRIENTS IN THE FIVE GROUPS.

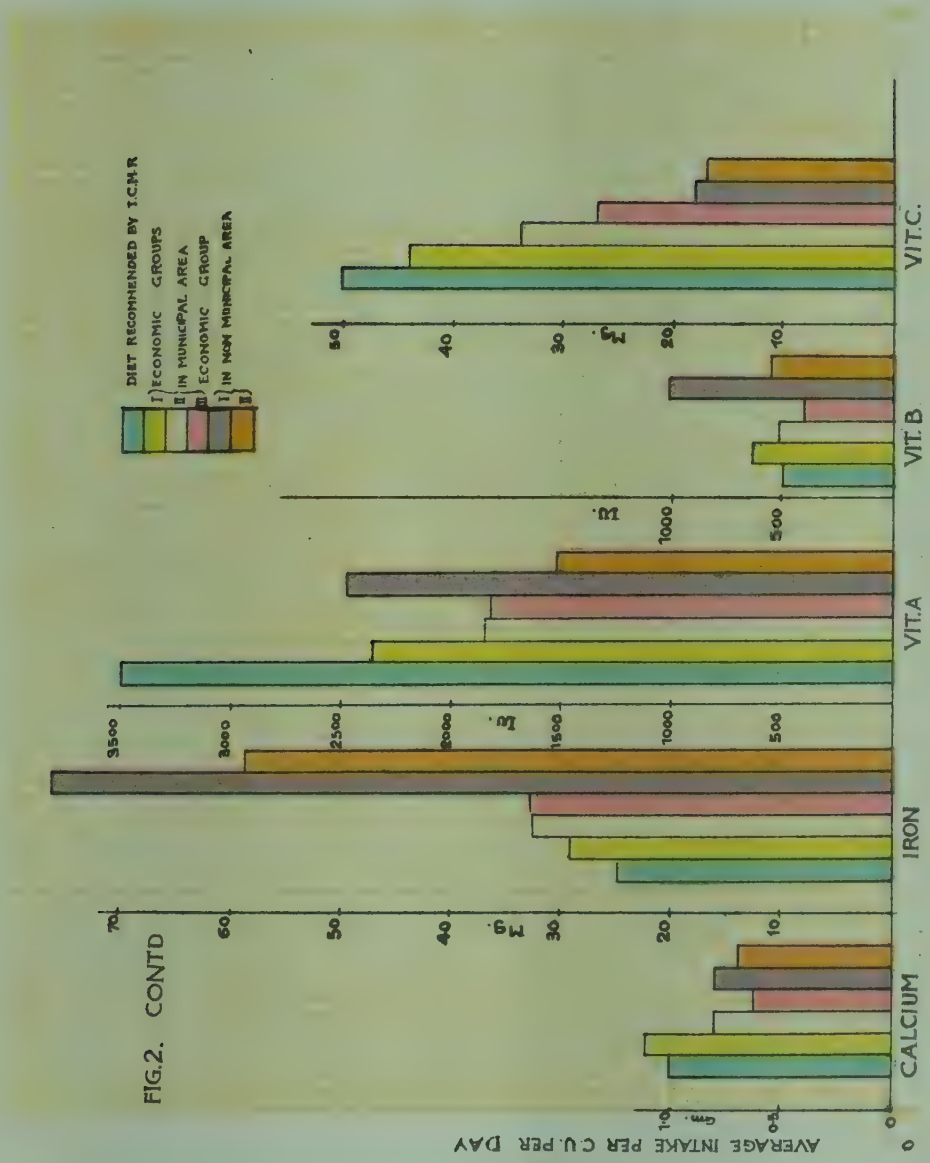
DIET RECOMMENDED BY I.C.M.R
I) ECONOMIC GROUPS IN MUNICPAL AREA
II) ECONOMIC GROUP IN NON MUNICPAL AREA
AVERAGE INTAKE PER C.U. PER DAY
CALCIUM
IRON
VIT.A
VIT.B
VIT.C.
gm.
mg.
I.U.
mg.

FIG.2. CONTD

APPENDIX A.

Report on Visit to Sirur Health unit (District Poona) in connection with the Nutritional Studies (September 1953).

In accordance with my programme, I visited Sirur (Ghodnadi), District Poona, on the afternoon of Monday, the 21st September 1953 in connection with the above investigations.

2. Soon after my arrival, I contacted the Medical Officer of Health (Dr. T. B. Mirchandani) and finalised my programme of visits to the different places in Sirur, in consultation with him. The Medical Officer of Health had already prepared a tentative programme in connection with my visit (Enclosure I) and, with slight modifications with regard to the timings on 23rd September 1953, the programme was fixed.

3. *Visit to the Health Unit (21st September 1953).*—Dr. Mirchandani took me round the Unit and explained to me the various activities of the Health Unit Organisation.

The Unit was started in December 1939, and the development of its activities has been shown in various charts. I was particularly interested in the maternal and infant mortality figures and the spade work done in the Unit in connection with the development of the nutritional activities.

4. *Visit to the Primary Girls' School (21st September 1953).*—This school is run by the District Local Board and has a strength of about 200 girls. The girls from the Certified School, which is located in Sirur, also attend this school.

5. Of the 40 girls examined during the visit, many of them showed dry and papular skin. Some of the children were stunted in growth, showed dental caries and occasional glossitis or night blindness. The nutritional status of the girls from the Certified School appeared to be fairly satisfactory.

6. *Visit to Vidya Dham High School (22nd September 1953).*—This is a privately managed school and has a strength of about 200 students, including about 18 girls. About 40 boys stay in the hostel.

7. During my visit, 25 students (13 boys and 12 girls) were examined thoroughly for their nutritional status (Enclosure II). This was mainly to demonstrate to the Medical Officer of Health the technique of 'rapid' clinical nutrition survey. Some children were stunted in growth and showed poor musculature and deficient subcutaneous fat. Night blindness, muddy conjunctivae, thickend conjunctivae, mild to marked dry and papular skin, xerosis of conjunctivae, Bitots' spots and dental caries were observed in some children. Glossitis was occasionally seen.

8. *Visit to Government Certified School for Girls (22nd September 1953).*—About 40 girls were present in the Certified School. I was taken round the Institution and shown their work. I saw the weekly menu served to the girls and also inspected the mid-day meal. I have requested the Lady Superintendant in charge to supply us ten-days' dietary data in order to study the diet served to the girls and suggest improvements, if necessary.

9. *Visit to Ghodnadi Clinic (22nd September 1953).*—I examined during my visit, a number of mothers and children to get an idea regarding the nutritional status of the mothers and children attending the clinic. All the 4 pregnant women examined, showed varying degrees of anaemia and peripheral neuritis. One of them, in addition, showed angular stomatitis glossitis and glazed tongue. Most of the children attended the clinic for ordinary coughs and colds. There were a few cases of undernutrition and one case of early rickets.

10. *Visit to Marathi School (23rd September 1953).*—This school is run by the District Local Board and has a total strength of about 500 students. In the morning session, there were about 60 students, of whom about 20 were examined for their nutritional status. The general nutritional status of the students of the school is rather poor. There were a number of cases of Bitot's spots, dry and papular skin, muddy conjunctivae and xerosis, dental caries and stunted growth.

11. *Visit to Urdu School (23rd September 1953).*—This is also run by the District Local Board and has a total strength of about 140 students, both boys and girls, about equal in number. About 80 students were present on the morning of the visit. As in the above vernacular school of the 15 children examined, there were cases of Bitot's spots, dry and papular skin, muddy conjunctivae and xerosis, dental caries and stunted growth.

12. *Staff Meeting (23rd September 1953).*—Dr. Mirchandani had kindly arranged a meeting of the Sanitary Inspectors, Health Visitors and the Midwives in the Unit. I addressed them on 'The importance of nutrition in public health work' and also explained to them the proposed plan of nutrition work in Sirur Health Unit. Four Sanitary Inspectors and 12 Health Visitors and Midwives were present.

13. *Future Lines of Work.*— During my visit, I had several discussions with the Medical Officer of Health regarding the development of nutritional activities in the Unit. In this connection, I had also contacted the Mamlatdar of the place (Shri Kulkarni) and the Agricultural Assistant stationed at Sirur.

I give below the main lines of future work— -

Collection of preliminary date—

In order to select a random sample for conducting a diet and nutrition survey in Sirur and Ghodnadi, the following details are necessary:—

(*a*) Total population—males, females and children.
(*b*) Total number of families and their size.
(*c*) Average monthly income per family.
(*d*) Total cultivable land per family.
(*e*) Total cultivable land in Sirur and Ghodnadi; total land which can be put under cultivation.
(*f*) Total annual rainfall.
(*g*) General information about food production. (Cereals, pulses, vegetables, fruits, milk and milk products and eggs).

The Medical Officer of Health has been requested to collect the information and forward it to this office, as early as possible. Both the Mamlatdar and the Agricultural Assistant have promised the necessary help in collecting the data.

14. *Diet Survey.*—After selecting the random sample, it is proposed to send a Senior Nutritionist from the Department to the unit for a period of about 2 to 3 weeks. During this period she will actually carry out the diet survey in the selected families and, at the same time, train the Health Visitors of the Unit to carry out similar surveys in the other areas of the Unit.

15. *Nutrition Survey.*—Once the diet survey is in progress, it is proposed to send the Medical Officer from the Department for conducting the nutrition survey of representative groups of school children in Sirur and Ghodnadi. From the preliminary examination conducted by me it appears that both the Marathi and Urdu schools require a complete examination. On the experience gained during this survey, the Medical Officer of Health will be in a position to conduct similar surveys in the other areas.

If necessary, I shall pay another short visit to the Unit when the work is in full swing.

16. *Nutrition of Expectant and Nursing Mothers.*—The Unit has adequate facilities for developing this work. Collection of dietary data by the Questionnaire method and complete haematological investigations in a selected group of mothers, may be undertaken at a later stage, after the diet and nutrition surveys mentioned above are completed.

17. *Milk Distribution.*—One of the activities which can be usefully developed at this centre the distribution of UNICEF milk to deserving mothers and children. This would give an opportunity to study the effects of long range feeding programme, especially the effects of milk supplements, on mothers, infants and growing children.

18. *Diet and Nutrition Surveys at different seasons.*—When once the first survey at Sirur and Ghodnadi is completed and the staff trained for the purpose, similar diet and nutrition surveys may be taken up at one or more centres and at different seasons. This would give an idea of the dietary trends at the various places in the area of the Unit and at different seasons of the year.

19. *Compilation of Statistical Information.*—The Unit has already collected data regarding the heights and weights of children and the birth weights of infants. The following data may also be collected:—

(*i*) Average heights and weights of school children of different ages, according to communities.

(*ii*) Growth pattern in school children.

(*iii*) Birth weights of infants according to communities.

(*iv*) Birth weights of infants in relation to mothers' protein intake.

Enclosure I.

Programme of Dr. Radhakrishna Rao, Assistant Director, I/C Nutrition Department, Bombay, from 21st September to 23rd September 1953.

21st September 1953, Monday, Afternoon	...	Acquainting with the activit es of the Health Unit Organization. Visit to Primary Girls School at 4-30.
22nd September 1953, Tuesday, Morning	...	Visit to Vidya Dham High School at 9–0. Visit to Government Certified School for Girls Sirur, at 10–30.
Afternoon	...	Ghodnadi Clinic from 3–0 to 5–0.
23rd September 1953, Wednesday Morning	...	Staff Conference at 11-0.
Afternoon	...	Visit to Urdu School at 12–0. Visit to Marathi School at 1-0.

Enclosure II.

Name of the School.—Vidya Dham High School, Ghodnadi.

Date of Examination—22nd September 1953.

Serial No.	Register No.	Name of the student.	Age.	Sex.	Signs and Symptoms.	Nutritional status.
1	76	Karkud ...	18	M.	Dental caries Muddy conjunctivae. Thickened conjunctivae. ...	Grade II.
2	93	Gaikwad ...	12	M.	Mild Hyperkeratosis ...	Do.
3	95	Gaikaiwari ...	12	M.	Night blindness (?) Dry skin. Hyperkeratosis ...	Do.
4	101	Supekar ...	12	M.	Mild Xerosis Dry Skin. Hyperkeratosis Night blindness ...	Grade III.
5	103	Vedapathak ...	14	M.	Dental caries Poor fat and musculature. Hyperkeratosis. Night blindness(?) ...	Grade III.
6	104	Wagh ...	10	M.	Stunted in growth Poor musculature and fat. Dental caries. ...	Grade II.

ENCLOSURE II—*contd.*

Serial No.	Register No.	Name of the student.	Age.	Sex.	Signs and Symptoms.	Nutritional status.
7	105	Ware ...	12	M.	Bitot's spots ... Mild Hyperkeratosis	Grade III.
8	128	Jagadale ...	14	M.	.....	Grade II
9	129	Kothari ...	12	M.	Stunted in growth ... Poor musculature and fat. Pigeon shaped chest.	Grade II.
10	130	Kate ...	12	M.	.....	Grade I.
11	134	Pujare ...	11	M.	Icthyosis of the skin of both the legs.	Grade II.
12	135	Shah ...	13	M.	.....	Grade I.
13	138	Upalenchwar ...	13	M.	Mild Hyperkeratosis ...	Grade II.
14	142	Kamal Lanke ...	18	F.	.....	Grade I.
15	143	Rajani Pol ...	16	F.	.....	Do.
16	144	Hemlata Sarda ...	16	F.	.....	Do.
17	145	Pyari Lodha ...	16	F.	.....	Do.
18	146	Usha Kulkarni ...	15	F.	.....	Do.
19	147	Nalini Sumant ...	12	F.	.....	Do.
20	148	Sindhu Datar ...	14	F.	Dental caries ... Dry skin. Anaestheticpatch on left forearm.	Grade II.
21	149	Vijaya Karandikar ...	14	F.	.....	Grade I.
22	150	Nira Saraf ...	14	F.	Stunted in growth Dental caries.	Grade II.
23	152	Mohini Awasarikar ...	12	F.	.....	Grade I.
24	156	Jostna Dixit ...	11	F.	.....	Do.
25		Tara Saraf ...	18	F.	Dry skin ... Slight glossitis.	Grade II.

APPENDIX B.

Department of Nutrition, Government of Bombay.

Schedule for diet survey.

Serial No. .....

Name of the Head of the family : .....

Address : .....

.....

Rent : Rs. .....No. of rooms occupied : .....

Caste or Community : .....Occupations.....

Mother tongue : .....

Place of origin : Village .....District .....

How long has the family been staying in Bombay : .....

Total income of the family (per month) : .....

Approximate expenditure on food per month : Home : Rs.....Outside Rs.....

No.	Name.	Sex.	Age.	Relation with the head of the family.	If earning the income per month.	Whether takes food outside.	Expenditure on outside food.	Remarks if any.
1	.....	...	...	...	...	...	...	...
2	.....	...	...	...	...	...	...	...
3	.....	...	...	...	...	...	...	...
4	.....	...	...	...	...	...	...	...
5	.....	...	...	...	...	...	...	...
6	.....	...	...	...	...	...	...	...
7	.....	...	...	...	...	...	...	...
8	.....	...	...	...	...	...	...	...
2	.....	...	...	...	...	...	...	...
10	.....	...	...	...	...	...	...	...

Name of the Investigator : .....

Period of Survey : from 195 to 195

General Remarks of the investigator if any :

Total quantity of Food Consumed by the Family in lbs.

(if otherwise, give unit of the measure).

Foods'uff.	1st day.			2nd day.			3rd day.			4 thday.			5th day			6th day.			7th day.			Total.	Remarks.
	Morn-ing.	Even-ing.	Oth er.	Morn-ing.	Even-ing.	Oth-er.	Morn-ing.	Even-ing.	Oth-er-	Morn ing.	Even-ing.	Oth-er.	Morn-ing.	Even-ing.	Oth-er.	Morn-ing.	Even-ing.	Oth-er	Morn-ing.	Even-ing.	Oth-er.		
Cereals—																							
Rice	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Wheat	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Bajra	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Other cereals	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Pulses—																							
Tur	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Chana	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Other Pulses	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Leafy	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Vegetables	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Root vegetables—																							
Potatoes	..	..	..	..	..	..	..	..	..	..		..	..	..	..	..	..	..	..	..	..	..	
Onions	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Others	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Other vegetables	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Fruits	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Sugar	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Jaggery	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	

Vegetable Oil and Fat—

Groundnut oil ..

Til oil ..

Coconut oil ..

Dalda or other hydrogenated oils. ..

Butter ..

Ghee ..

Milk and milk products—

Milk ..

Curds ..

Buttermilk ..

Fish ..

Meat ..

Eggs ..

Nuts and oil seeds—

Groundnuts ..

Coconuts ..

Others ..

Dried fruits ..

Condiments ..

Other foods ..

Foods taken outside ..

Absentees for the particular meals. ..

Guests— { Male .. / Female .. } (with ages approx.).

APPENDIX C.

Department of Nutrition, Government of Bombay.

Schedule for diet surveys in rural areas.

Serial No.....

Name of the Head of the family : .....

Address :.....Village : .....Taluka : .....District : .....

Rent Rs. .....No. of rooms occupied : .....

Caste or Community : .....Occupation : .....

No. of earning members in the family : .....Males .....Females.....

Mother tongue : .....Vegetarian/Non-vegetarian. .. ..

Place of origin : .....Village: .....District: .....

How long has the family been staying in :.....

Landowner/Tenant. No. of acres of land: .....

Annual Agricultural tax/rent Rs. .....

Procurements Varieties: .....Quantity: .....Year ..... of grains.

Cattle wealth : Bullocks : .....Cows .....Others .....

Poultry Yes/No.

Total income of the family (per month): .....

Approximate expenditure on food per month : Home : Rs. .....Outside : Rs. .....

Expenditure on the following items :—

(*i*) Clothes : .....
(*ii*) Entertainment : .....
(*iii*) Feeding stuffs for cattle :.....

Health matters—

(*i*) Water supply .....
(*ii*) Common ailments in the family : .....

General Remarks :—

No.	Name	Sex	Age	Relation with the head of the family	If earning the income per month.	Whether takes food outside	Expenditure on outside food.	Remarks, if any.
2								
3								
4								
5								
6								
7								
8								
9								
0								
1								
2								
3								
4								
5								

Total quantity of Foods Consumed by the Family in lbs. (Give other units, wherever necessary).

Food groups.	Days ...	1st		2nd		3rd		4th		5th		6th		7th		Total.	Remarks.
		Morn-ing.	Even-ing.	Morn-ing.	Even-ing.	Morn-ing.	Even-ing.	Morn-ing.	Even-ing.	Morn-ing.	Even-ing.	Morn-ing.	Even-ing.	Morn-ing.	Even-ing.		
Cereals ...	Rice (polished)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Rice (unpolished)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Wheat	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Jowar	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Other cereals	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Pulses ...	Tur	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Chana	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Other pulses	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Leafy vegetables		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Roots and Tubers	Potatoes	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Onions	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Others	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Other vegetables		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Sugar	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Jaggery	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Vegetable Oils	Groundnut oil	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Til oil	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Coconut oil	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Hydrogenated vegetable oils		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Other oils	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Butter	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Ghee	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Milk products...	Milk	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Curds	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Buttermilk	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	

| | | |

DEPARTMENT OF NUTRITION, GOVERNMENT OF BOMBAY.

Form for the Compilation of Dietary Data.

Serial No. of the Family :

Adult Males ... ... C. Us. :

Adult Females ... ... C. Us. :

Children ... ... C. Us. :

Total C. Us. of the family :

Total C. Us. for seven days :

Correction to the total C. Us. : (for guests and absentees).

Corrected C. Us. :

Foodstuffs.	Total for seven days (in ozs.)	Quantity per C. U. per day (in ozs.)	Remarks.
Rice polished	.....	.....	.....
Rice unpolished	.....	.....	.....
Wheat/Bread	.....	.....	.....
Jowar	.....	.....	.....
Other cereals	.....	.....	.....
'Tur' dal	.....	.....	.....
'Chana' dal	.....	.....	.....
Other pulses	.....	.....	.....
Leafy vegetables	.....	.....	.....
Potatoes	.....	.....	.....
Onions	.....	.....	.....
Other Roots and Rubers	.....	.....	.....
Other vegetables	.....	.....	.....
Sugar	.....	.....	.....
Jaggery	.....	.....	.....

Foodstuffs.	Total for seven days (in ozs.)	Quantity per C. U. per day (in ozs.)	Remarks.
Groundnut oil	.....	.....	.....
Til oil	.....	.....	.....
Coconut oil	.....	.....	.....
Hydrogenated oils	.....	.....	.....
Vegetable oil	.....	.....	.....
Butter	.....	.....	.....
Ghee	.....	.....	.....
Milk	.....	.....	.....
Curds	.....	.....	.....
Buttermilk	.....	.....	.....
Fish	.....	.....	.....
Meat	.....	.....	.....
Eggs	.....	.....	.....
Groundnuts	.....	.....	.....
Coconuts	.....	.....	.....
Other nuts	.....	.....	.....
Fruits	.....	.....	.....
Dried fruits	.....	.....	.....
Condiments	.....	.....	.....
Other foods	.....	.....	.....

APPENDIX

Results of the Diets Survey of families

Municipal Area Economic Group I (Rich)

1. Serial Number of the family.		1	2	3	4	5	6
2. Caste/Community	...	Hindu	Hindu	Hindu	Hindu	Jain	Jain
3. Language spoken	...	Marathi			Marwari		
4. Vegetarian/Non-vegetarian.		Vegetarian					
5. Rent of the tenement.		House owned.	Rs. 28		House owned		
6. Number of members.							
Adults	M	3	2	2	6+1	1	2+1
	F	3	1	1	4	2	2+1
Children	M	2	1	...	2	2	2
	F	3	...	2	3	2	2
Total	...	11	4	5	16	7	10
7. Total C. Us. of the family.		8·8	3·3	4·4	13·8	5·6	8·8
8. Number of earning members.	M	2	1	1	4	1	1
	F	...	...	...	...	...	...
9. Occupation	...	Land-owner Farmer	Doctor	Cloth merchant.	Business	Business	Kirana merchant.
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
10. Total income p. m. of the family and/or, information indicating economic condition of the family.		250	300	200	1,000	300	1,500 per year 2 cows in village.
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
11. Income per C. U.	...	28·4	90·9	45·5	72·5	53·6	18·2
12. *Daily consumption of food Stuffs per C. U. (in ozs)*—							
(*i*) Rice	...	1·6	2·5	1·7	1·8	2·3	1·0
Wheat	...	1·2	5·7	3·7	2·8	2·8	2·7
Jowar	...	9·4	0·9	1·4	2·2	...	2·4
Bajra	...	2·4	1·8	2·6	3·1	5·8	2·3
Total cereals	...	14·6	10·9	9·4	9·9	10·9	8·4

D.

residing in Sirur Health Unit Area.

Municipal Area Economic Group II (Middle)

7	8	9	10	11	12	13	14	15
Jain	Jain	Hindu	Hindu	Hindu	Hindu	Hindu	Hindu	Hindu
Marwari		Marathi						
Vegetarian						Non-vegetarian		
		Rs.	Rs.	Rs.	Rs.	Rs.		Rs.
House owned	House owned	18	15	13	13	10	House owned	2
1	3	2	2	1	2	1	1	1
—	—	—	—	—	—	—	—	—
1	2	2	3	1	2	1	1	2
1	1	3	...	1	1	1	2	...
—	—	—	—	—	—	—	—	—
...	1	3	2	...	3	1	...	...
3	7	10	7	3	8	4	4	3
2·6	6·1	7·1	5·3	2·3	5·7	2·8	2·8	2·8
...	1	2	2	1	1	1	1	1
—	—	—	—	—	—	—	—	—
...	...	...	...	...	...	...	...	...
Land-owner	Cloth merchant	Teacher	Clerks	Clerk	Clerk	Driver (S. T.)	Secretary Gram panchayat	Cleaner
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
150	250	265	200	100	118	107	69	75
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
57·7	41·0	37·3	37·7	43·5	20·7	38·2	24·6	26·8
0·3	0·7	1·6	2·2	3·2	1·8	0·3	2·2	...
2·1	3·5	1·6	0·9	1·6	0·8	...	0·5	...
0·7	...	...	1·6	4·8	...	...	3·2	14·8
4·6	4·2	5·4	5·5	1·2	6·6	10·3	15·0	0·1
7·7	8·4	8·6	10·2	10·8	9·2	10·6	20·9	14·9

	1	2	3	4	5	6
(*ii*) Pulses ...	1·3	2·1	1·8	2·3	1·3	2·7
(*iii*) Leafy vegetable ...	0·3	0·6	0·4	0·3	0·7	0·2
(*iv*) Root vegetable ...	3·2	4·9	0·8	1·0	0·4	...
(*v*) Other vegetable ...	2·4	5·5	1·0	1·5	0·7	0·8
(*vi*) Fruits ...	0·4	1·9	0·7	0·6	0·2	0·4
(*vii*) Sugar/Jaggery ...	2·6	3·6	2·2	1·6	1·7	2·3
(*viii*) Vegetable oil and fat.	1·1	2·0	0·2	0·3	0·3	...
(*ix*) Butter and ghee ...	...	0·5	0·6	0·4	0·5	1·6
(*x*) Milk and milk products.	10·9	15·6	15·2	18·8	14·7	9·5
(*xi*) Fish ...	...	...	...	...	...	...
(*xii*) Meat ...	...	...	...	...	...	...
(*xiii*) Eggs ...	...	0·4	...	...	...	...
(*xiv*) Groundnuts ...	0·4	0·5	1·2	0·3	0·3	0·6
(*xv*) Other foods ...	0·04	0·6	0·4	0·5	...	...
(*xvi*) Condiments ...	0·1	0·3	0·04	0·2	0·1	0·1
13. *Nutrient Analysis*—						
(*i*) Total Proteins (*g*)	71·2	78·2	67·8	71·3	63·1	60·1
(*ii*) Animal Proteins (*g*)	13·1	20·2	16·3	21·5	17·6	11·4
(*iii*) Fats (*g*)	64·6	117·5	63·2	61·5	60·8	74·6
(*iv*) Carbohydrates (*g*)	438·4	429·1	327·0	332·1	313·5	298·3
(*v*) Calcium (*g*)	0·94	1·38	0·97	1·35	1·15	0·85
(*vi*) Phosphorus (*g*)	1·49	1·97	1·51	1·85	1·69	1·41
(*vii*) Iron (*mg*)	34·0	34·4	24·5	27·1	29·0	22·8
(*viii*) Vitamin A (I.U.) ...	1,586	3,161	2,556	2,091	2,441	2,298
(*ix*) Vitamin B1 (I.U.)	602	635	894	480	448	459
(*x*) Vitamin C (mg) ...	43	114	31	35	24	17
(*xi*) Calories ...	2,619	3,086	2,148	2,167	2,053	2,106
14. *Distribution of Calories* (in percentage).						
(*i*) Proteins ...	11	10	13	13	12	11
(*ii*) Fats ...	22	34	26	26	27	32
(*iii*) Carbohydrates ...	67	56	61	61	61	57

D—*contd.*

7	8	9	10	11	12	13	14	15
2·6	2·9	0·7	1·1	2·5	2·0	1·1	3·9	1·1
...	0·05	0·3	0·2	...	0·3	...	0·8	0·01
0·2	1·8	0·8	1·8	1·8	0·7	0·6	1·2	1·3
1·0	0·6	1·0	0·6	3·8	0·6	1·5	0·6	...
7·7	1·0	...	0·2	1·6	...	...	...	...
1·6	1·0	1·1	0·8	1·6	1·9	0·9	3·0	1·5
...	0·6	0·5	1·1	0·1	0·4	0·3	2·0	0·5
1·0	0·07	...	...	...	...	...	...	...
6·1	12·6	9·5	8·2	11·9	4·3	3·6	14·0	1·7
....	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	1·6	...
...	...	...	...	...	...	...	...	...
0·9	0·03	0·2	0·8	0·04	0·3	...	2·4	...
0·3	...	0·8	0·6	...	0·8	...	1·1	...
0·2	0·07	0·1	0·1	0·01	0·2	0·1	0·3	0·8
56·4	61·7	45·4	55·0	63·0	50·7	46·0	133·6	57·4
7·3	15·1	11·4	9·3	14·3	5·2	4·3	23·1	2·0
58·2	48·2	41·8	55·5	31·1	37·2	30·6	143·7	27·0
291·1	272·0	232·2	280·8	346·6	291·3	256·2	621·9	386·5
0·67	1·04	0·79	0·67	1·02	0·50	0·46	1·30	0·37
1·36	1·56	0·92	1·39	1·57	1·26	1·30	3·09	1·46
26·1	24·9	22·2	25·8	25·5	27·0	33·0	64·1	34·4
2,989	1,488	1,256	1,485	1,166	1,157	957	3,484	975
465	451	338	445	453	386	376	1,019	543
119	31	19	21	65	14	8	29	16
1,914	1,769	1,486	1,843	1,919	1,702	1,484	4,369	2,019
12	14	12	12	13	12	12	13	11
27	24	25	27	15	20	19	30	12
61	62	63	61	72	68	69	57	77

APPENDIX

Group II (Middle). Municipal Area Economic

1. Serial No. of the family.		16	17	18	19	20
2. Caste/Community ...		Muslim		Hindu		
3. Language spoken ...		Urdu		Marathi		
4. Vegetarian/Non-vegetarian.		Non-vegetarian.		Vegetarian		
				Rs.	Rs.	Rs.
5. Rent of the tenement.		House owned.		3	7	6
6. Number of members—						
Adults ...	M	1	2	1	2	1
	F	1	.....	1	1	1
Children ...	M	1	1	1	4	1
	F	2	1	2	1	1
Total ...		5	4	5	8	4
7. Total C. Us. of the family.		3·4	3·8	3·4	6·9	3·1
8. No. of earning members.	M	.....	1	1	1	1
	F	.....	.....	.....	.....	.....
9. Occupation ...		Farmer.	Farmer.	Conductor (S. T.)		Peon
			Rs.	Rs.	Rs.	Rs.
10. Total income of the family and/or information indicating economic condition of the family.		All expenditure is paid by father-in-law in goods.	100	60	60	60
		Rs.	Rs.	Rs.	Rs.	Rs.
11. Income per C. U. ...		.....	26·3	17·6	8·7	19·4
12. *Daily consumption of foods per C. U.* (in ozs.)—						
(i) Rice ...		1·9	1·5	0·6	.....	1·3
Wheat ...		16·6	5·7	.....	.....	1·2
Jowar ...		.....	.....	3·3	6·0	6·9
Bajra ...		.....	8·2	4·4	4·0	1·0
Total cereals ...		18·5	15·4	8·3	10·0	10·4

D —*contd.*

Group III (Poor).

21	22	23	24	25	26	27
Hindu						
Marath.						
Vegetarian.			Non-vegetarian.			
Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
6	7	House owned.	6	5	2/8	4
3	2	1	1	1	1	1
—	—	—	—	—	—	—
2	2	1	2	1	2	1
2	4	1	.....	3	.....	.....
—	—	—	—	—	—	—
1	1	.....	2	.....	2	3
—	—	—	—	—	—	—
8	9	3	5	5	5	5
7·4	7·0	2·3	4·6	2·9	4·1	4·1
2	2	1	1	1	1	1
—	—	—	—	—	—	—
.....	.....	.....	.....	.....	2	.....
Teacher.	Peon.	Unemployed.	Mukadam.	Peon.	Servants.	Labourer
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
100	86	55	75	70	40	1 per day.
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
13·5	12·3	23·9	16·3	24·1	9·7	Daily Labour.
.....	0·2	0·4	.....	0·4	.....	0·1
.....	.....	0·2	0·3	.....	.....	.....
.....	4·1	3·4	0·7	12·9	.....	6·6
11·6	10·4	5·3	11·2	.....	9·5	1·2
11·6	14·7	9·3	12·2	13·3	9·5	7·9

	16	17	18	19	20
(*ii*) Pulses ...	0·3	1·8	0·8	1·1	1·5
(*iii*) Leafy vegetables.	0·2	0·4	0·9	0·2	0·7
(*iv*) Root do. ...	2·2	1·4	.....	0·7	1·7
(*v*) Other do. ...	1·8	1·1	1·0	1·6	1·1
(*vi*) Fruits ...	2·3	.....	.....	.....	1·3
(*vii*) Sugar/Jaggery ...	3·2	2·1	0·2	1·2	1·0
(*viii*) Vegetable oil and fat.	1·0	0·5	0·1	0·1	0·9
(*ix*) Butter and ghee ...	.....	.....	.....	.....	.....
(*x*) Milk and milk products.	12·4	4·0	2·7	2·4	4·4
			7·4 S. M.	1·6 S. M.	4·4 S. M.
(*xi*) Fish ...	0·1	.....	.....	.....	.....
(*xii*) Meat ...	0·3	0·6	.....	.....	.....
(*xiii*) Eggs ...	.....	.....	.....	.....	.....
(*xiv*) Groundnuts ...	.....	0·1	.....	0·2	0·4
(*xv*) Other foods ...	0·1	.....	.....	0·2	0·1
(*xvi*) Condiments ...	0·3	0·1	.....	0·1	0·2
13. *Nutrient Analysis*—					
(*i*) Total Proteins (g)	82·1	72·1	40·8	45·9	53·9
(*ii*) Animal do. (g)	17·1	8·0	8·5	4·0	8·4
(*iii*) Fats (g)	59·4	39·8	16·3	21·0	44·5
(*iv*) Carbohydrates (g)	507·9	408·9	202·1	267·9	279·5
(*v*) Calcium (g)	1·25	0·72	0·63	0·42	0·70
(*vi*) Phosphorus (g)	2·24	1·82	1·13	1·23	1·33
(*vii*) Iron (mg)	35·1	36·3	23·0	27·7	25·5
(*viii*) Vitamin A (I. U.)	3,812	1,608	1,830	1,076	1,979
(*ix*) Vitamin B1 (I. U.)	931	670	292	394	465
(*x*) Vitamin C (mg.)	25	27	25	26	49
(*xi*) Calories ...	2,894	2,282	1,119	1,454	1,814
14. *Distribution of calories (in percentage)*—					
(*i*) Proteins ...	11	12	15	13	12
(*ii*) Fats ...	18	16	13	13	22
(*iii*) Carbohydrates ...	71	72	72	74	66

S. M.=Skim milk.

D—*contd.*

21	22	23	24	25	26	27
5·9	0·9	2·1	2·2	1·6	2·1	3·8
.....	0·1	1·9	2·0	0·3	0·6	0·2
.....	0·2	0·4	0·5	0·4	0·7	0·7
0·3	0·3	.....	1·2	1·7	1·1	0·6
.....	.....	.....	0·5	.....	.....	.....
2·1	1·9	1·1	0·7	0·7	0·5	2·0
0·5	0·2	0·5	0·2	0·2	0·2	·05
.....	0·2	.....	.....	.....	.....	.....
2·0+	2·2	3·5	5·0+	1·8	0·6+	0·6
0·4 M. P.			2·0 B. M.		4·0 S. M.	S. M.
.....	.....	.....	.....	.....	.....	0·04
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
0·7	0·2	.....	0·2	.....	.....	.....
.....	0·5	.....	0·3	.....	.....	.....
0·2	0·2	.....	0·4	0·2	0·2	0·3
87·8	56·6	48·8	67·3	53·2	50·0	49·7
6·7	2·6	4·2	7·4	2·2	3·6	0·4
43·1	37·2	30·3	35·5	14·0	21·0	7·6
388·1	363·3	260·2	319·4	334·9	241·1	285·4
0·91	0·47	0·65	0·91	0·34	0·57	0·47
2·09	1·60	1·25	1·80	1·28	1·35	1·13
45·9	38·7	32·1	42·3	28·9	32·9	30·9
1,117	1,318	3,392	3,987	1,143	1,619	962
448	499	322	435	513	318	277
4	7	34	59	25	24	13
2,292	2,014	1,509	1,866	1,678	1,353	1,408
15	11	13	14	13	15	14
17	17	18	17	8	14	5
68	72	69	69	79	71	81

M. P. = Milk powder. S. M. = Skim milk. B. M. = Butter milk.

APPENDIX

	Non-Municipal Area.		Economic Group I (Middle).		Non-Municipal Area.
1. Serial No. of the family.	28	29	30	31	32
2. Caste/Community ...	Hindu				
3. Language spoken ...	Marathi				
4. Vegetarian/Non-vegetarian.	Non-Vegetarian.				
5. Rent of the tenement.	House owned.				
6. No. of members—					
Adults ...	2+1 / 4	2 / 2	1+1 / 1	2+1 / 3	6—1 / 4
Children ...	4 / 1	2 / 3	... / 3	2 / 1	5 / 3
Total ...	12	9	6	9	19
7. Total C. Us. of the family.	9·6	6·3	4·7	7·9	15·6
8. No. of earning members.	2 / 4	2 / 2	1 / 1	2 / 3	5 / 4
9. Occupation ...	Farmer.				
10. Information indicating economic condition of the family.	Landowner.	Landowner.	Landowner.	Landowner.	Rs. Rs. 2500 to 3000
11. Income per year ...	Rs. 1,200 to Rs. 1,600 Per year.	Rs. 1,000 to Rs. 1,500 Per year.	Rs. 1,500 to Rs. 2,000 Per year.	Rs. 1,300 to Rs. 1,700 Per year.	
Acreage ...	44A. 23G.	45A.	25A.	55A	125A. 13G.
Tax paid ...	Rs. a. p. 21 3 4	Rs. a. p. 16 0 0	Rs. a. p. 15 0 0	Rs. a. p. 38 15 3	Rs. 58-3-3
Produce ...	Md. 56	Md. 35	Md. 32	Md. 32	Md. 325
Cattle ...	16	5	10	11	24
Poultry ...	2@	12@	10	7@	4

A—Acre ; G—Guntha, @Bullock- cart.

)—*contd.*

Non-Municipal Area Economic Group I (Middle).

33	34	35	36	37	38
Hindu					
Marathi					
Non-Vegetarian					
House owned					
2	2	2	1	1	2
3	1	1	1	3	1
3	.....	.....	2	2	1
1	2	1	1	2	1
9	5	4	5	8	5
6·9	4·0	3·3	3·7	5·6	4·1
2	1	1	1	1	1
.....	.....	1	.....	.....	.....
Farmer		Servant in Mill	Small shop owner.	Farmer.	Labourer
27 A. 17G.	22 A.	8 A.	.....	37 A.	4 A.
Rs. 16	Rs. 11	Rs. 5	.....	Rs. 17	Rs. 1-8
.....	40 Md.	2 Md.	.....	27 Md.	2 Md.
4	10	.....	.....	4	2
8@	2	.....	.....	15@	5
Rs. 500 to 700 Pl. 65 per mensem.	Rs. 1,000 to 1,500	Rs. 200 to 300 Pl. 60 per mensem	Rs. 55 per mensem.	Rs. 900	Rs. 45 per mensem.

	28	29	30	31	32
12. *Daily consumption of foods per C. U. (in ozs.)*—					
(*i*) (*a*) Rice ...	.....	.....	0·7	.....	.....
(*b*) Wheat	.....	0·6	0·9	0·3	0·7
(*c*) Jowar ...	1·4	.....	5·3	.....	.....
(*d*) Bajra ...	27·4	31·9	17·6	27·0	32·5
Total cereals ...	28·8	32·5	24·5	27·3	33·2
(*ii*) Pulses ...	4·3	3·8	2·5	2·2	3·3
(*iii*) Leafy vegetables ...	0·1	0·4	.....	0·4	.....
(*iv*) Root vegetables ...	0·1	0·8	1·2	0·1	0·8
(*v*) Other vegetables ...	0.2	0·6	1·5	0·7	0·6
(*vi*) Fruits ...	.....	.....	0·5	.....	.....
(*vii*) Sugar/Jaggery ...	.....	1·6	3·2	1·1	0·6
(*viii*) Vegetable oil/fats ...	0·2	0·3	0·5	0·2	0·2
(*ix*) Butter and ghee ...	.....	.....	.....	.....	0·3
(*x*) Milk and Milk products.	.....	2·6	7·4	2·0	2·0
(*xi*) Fish ...	.....	0·1	.....	0·2	0·2
(*xii*) Meat ...	.....	.....	.....	.....	.....
(*xiii*) Groundnuts ...	.....	.....	0·3	.....	0·1
(*xiv*) Eggs ...	1·1	1·0	3·0	1·8	.....
(*xv*) Other foods ...	0·7	.....	0·3	0·1	0·1
(*xvi*) Condiments ...	0·2	0·5	0·1	0·5	0·2
13. *Nutrient Analysis*—					
(*i*) Total Proteins (g)	131·7	145·7	127·9	124·4	138·3
(*ii*) Animal Proteins (g)	.....	3·7	8·1	2·5	5·2
(*iii*) Fats (g)	59·8	71·5	90·1	73·5	67·4
(*iv*) Carbohydrates (g)	643·4	743·7	647·3	607·5	714·0
(*v*) Calcium (g)	0·65	0·94	0·88	1·02	0·80
(*vi*) Phosphorus ...	3·54	4·40	3·16	3·31	4·30
(*vii*) Iron (mg)	82·3	96·5	70·4	79·6	91·9
(*viii*) Vitamin A (I.U.)	2,217	3,031	2,412	2,660	2,590
(*ix*) Vitamin B1 (,,)	1,105	1,170	1,154	1,074	1,185
(*x*) Vitamin C (mg)	6	23	27	22	11
(*xi*) Calories ...	3,638	4,201	3,911	3,588	4,016
14. *Distribution of calories (in percentages)*—					
(*i*) Proteins ...	14	14	13	14	14
(*ii*) Fats ...	15	15	21	8	15
(*iii*) Carbohydrates ...	71	71	66	78	71

D—*contd.*

33	34	35	36	37	38
.....	.....	.....	.....	.....	.....
.....	.....	.....	1·8	.....	.....
15·3	20·3	13·6	0·7	18·6	23·7
4·2	3·0	3·6	11·4	9·2	15·3
19·5	23·3	17·2	13·9	27·8	39·0
4·3	1·4	2·0	0·5	6·6	1·5
0·2	1·1	0·6	.....	.....	.....
1·3	1·1	1·2	2·0	0·1	2·3
1·0	0·5	1·7	0·7	0·4	1·1
.....	.....	.....	.....	.....	0·8
1·6	1·6	1·7	3·5	1·4	1·9
0·5	0·1	0·2	0·8	0·4	0·6
.....	.....	.....	0·2	.....	.....
5·6	5·3	2·8	7·7	1·8	0·7
0·04	.....	.....	0·3	.....	0·8
.....	.....	.....	.....	.....	.....
.....	.....	0·4	2·0	0·9	0·33
.....	.....	0·4	.....	.....	.....
0·5	.....	0·2	0·6	.....	.....
0·2	0·7	0·3	0·1	0·6	0·1
96·5	88·9	74·0	76·3	135·9	139·0
7·3	6·1	3·1	10·2	1·9	5·9
39·1	28·0	28·8	80·1	49·2	57·9
540·3	567·3	455·5	406·5	719·7	883·7
0·93	0·84	0·53	0·75	0·85	0·64
2·40	2·38	1·84	1·87	3·25	3·67
52·2	56·1	45·2	37·0	74·2	91·7
1,378	2,960	2,097	2,904	2,363	2,392
684	787	692	682	1,340	1,367
16	10	35	16	5	31
2,899	2,877	2,377	2,652	3,865	4,612
13	12	12	12	14	12
12	9	11	27	11	11
75	79	77	61	75	77

APPENDIX

Non-Municipal area economic group II (Poor).

1. Serial No. of the family		39	40	41
2. Caste/Community		Hindu		
3. Language spoken		Marathi		
4. Vegetarian/Non-vegetarian.		Non-vegetarian		
5. Rent of the tenement.		House-owned		
6. Number of members—				
Adults	M.	2	1	1
	F. ...	2	1	2
Children	M. ...	2	1	2
	F. ...	1	3	2
	Total ...	7	6	7
7. Total C. Us. of the family.		5·4	4·3	5·3
8. Number of earning members	M. ...	2	1	1
	F. ...	2	1	1
9. Occupation	...	Farmer	Gaokamgar	Farmer
10. Information indicating economic condition of the family.	Acreage	12 A.§	1 A.	32 A.§
	Tax paid	Rs. 6	Rs. 5	Rs. 11-9-9
	Produce	25 Md.	2 Md.	38 Md.
	Cattle	6	1	6
	Poultry.	2	.....	.....
11. Income per year.		Rs. 500 to 800	Rs. 5 per week	Rs. 800 to 1,000
12. *Daily consumption of foods per C. U. (in ozs.)*—				
(i) Rice	...	.....	.....	.....
Wheat	...	.....	.....	.....
Jowar	...	.....	0·1	1·5
Bajra	...	20·1	11·0	19·6
Total—Cereals	...	20·1	11·1	21·1

D—*contd.*

42	43	44	45	46
Hindu				
Marathi				
Non-Vegetarian				
House owned				
.....	2	3	1	2
3	2	1	2	3
.....	8	2	.....	.....
2	.....	4	.....	1
5	7	10	3	6
3·9	4·7	8·2	2·8	5·8
.....	1	2	1	1
2	1	1	1	1
Farmer-Bidi making	Farmer		Labourer	
8 A.§	8 A.§	14 A.§	3 A.	.....
Rs. 3	Rs. 3	Rs. 7	Rs. 2	.....
5 Md.	5 Md.	10 Md.	½ Md.	.....
2	2	14	.....	.....
2	4	2	.....	.....
Rs. a. p. 6 4 0 per week.	Rs. a. p. 7 8 0 per week.	Rs. 500 to 700 per year.	Rs. 40 per mensem.	Rs. 20 per mensem.
.....	.....	.....	.....	.....
0·5	0·3	.....	.....	.....
0·5	20·7	4·8	10·3	10·5
8·0	.....	13·9	5·7	.....
9·0	21·0	18·7	16·0	10·5

*A—Acre.
G—Guntha.
§Landowner.
@Bullock-cart.

	39	40	41
(*ii*) Pulses ...	6·0	3·4	3·6
(*iii*) Leafy vegetable ...	0·6	0·3	.....
(*iv*) Root vegetable ...	1·7	0·3	0·1
(*v*) Other vegetable ...	1·0	.....	0·9
(*vi*) Fruits ...	.....	.....	.....
(*vii*) Sugar/Jaggery ...	0·6	0·1	.....
(*viii*) Vegetable oil/fat ...	0·3	0·3	0·1
(*ix*) Butter and ghee ...	.....	.....	.....
(*x*) Milk and milk products.	0·5	.....	.....
(*xi*) Fish ...	.....	.....	.....
(*xii*) Meat ...	.....	.....	.....
(*xiii*) Groundnuts ...	0·4	.....	0·1
(*xiv*) Eggs ...	.....	.....	.....
(*xv*) Other foods ...	0·3	.....	0·1
(*xvi*) Condiments ...	0·3	0·2	0·1
13. *Nutrient Analysis*—			
(*i*) Total Proteins (g)...	110·6	59·1	93·4
(*ii*) Animal Proteins (g)	0·5	.....	.....
(*iii*) Fats (g) ...	44·3	25·0	34·3
(*iv*) Carvohydrates (g)...	519·8	273·1	467·1
(*v*) Calcium (g) ...	0·83	0·47	0·59
(*vi*) Phosphorus (g) ...	2·77	1·50	2·49
(*vii*) Iron (mg.) ...	66·3	36·1	59·7
(*viii*) Vitamin A (I.U.) ...	2,479	1,268	1,466
(*ix*) Vitamin B1 (I.U.)...	711	353	699
(*x*) Vitamin C (mg.) ...	26	9	11
(*xi*) Calories ...	2,921	1,554	2,551
14. *Distribution of Calories (in percentage)*—			
(*i*) Protein ...	15	15	15
(*ii*) Fats ...	14	15	12
(*iii*) Carbohydrates ...	71	70	73

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D—*concld.*

42	43	44	45	46
1·4	4·0	4·5	8·9	0·3
.....	.....	0·1	0·2	0·5
.....	1·1	0·4	1·5	0·8
0·2	0·2	1·8	1·2	0·8
.....	.....	.....	.....	.....
1·4	1·0	1·7	1·9	0·8
0·3	0·2	0·3	0·1	0·1
.....	.....	.....	.....	.....
5·8	1·5	0·4	0·7	.....
.....	.....	0·2	.....	0·2
.....	.....	.....	.....	.....
.....	0.03	.....	.....	0·01
.....	.....	0·2	.....	.....
.....	0·1	.....	.....	1·4
0·1	0·9	0·3	0·5	0·3
45·9	94·7	94·2	199·1	41·9
7·0	1·8	3·2	0·8	2·8
30·6	24·1	33·3	19·8	9·9
242·4	547·8	491·7	533·9	264·9
0·60	1·02	0·70	1·04	0·36
1·36	2·24	2·36	2·50	1·67
28·5	50·3	58·9	59·7	25·0
871	1,309	1,571	1,619	1,574
301	813	614	543	390
3	19	24	26	20
1,429	2,787	2,643	2,750	1,316
13	14	14	16	13
19	8	11	6	7
68	78	75	78	80

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APPENDIX E.

Department of Nutrition, Government of Bombay.

Schedule for Rapid Clinical Nutrition Survey.

Serial No..... Date .....

Name : .....

Age : .....Years .....Months. Sex : ..... Place : .....

Weight : lbs. Height : inches.

Haemoglobin : g/100 ml. Std. Div.

Grade I

Grade II

(*a*) Poor musculature.

(*b*) Deficient subcutaneous fat.

(*c*) Mild anaemia.

(*d*) Lack of interest in surroundings.

(*e*) Mild signs of not more than one of the specific nutritional disorders or deficiencies mentioned under Grade III.

Grade III

(*a*) Gross muscular wasting.

(*b*)— (*i*) Xerosis or pigmentation of conjunctivae.
(*ii*) Bitot's spots.
(*iii*) Xerosis of cornea.
(*iv*) Angular conjunctivitis.

(*c*) Marked anaemia.

(*d*) (*i*) Red and/or raw tongue ; Glazed tongue ; Stomatitis.
(*ii*) Bleeding gums.

(*e*) Dental caries.

(*f*) Dry and/or rough skin.
Hyperkeratosis.
Crazy pavement epithelium.

(*g*) Oedema—localised or generalised.

(*h*) Tenderness of the Calf muscles.

Special remarks (if any) :—

II. Report on the Diet and Nutrition Studies in the Karjat Community Project area (District Kolaba)

(1953-1954)

DEPARTMENT OF NUTRITION, GOVERNMENT OF BOMBAY.

REPORT ON THE DIET AND NUTRITION STUDIES IN THE KARJAT COMMUNITY PROJECT AREA (HUMGAON VILLAGE), DISTRICT KOLABA.

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REPORT ON THE DIET AND NUTRITION STUDIES IN COMMUNITY PROJECT AREA, KARJAT, DISTRICT KOLABA (1953–54).

1. Introduction :

The vast majority of the people living in the rural areas in the country have lagged behind in the progress made in the various fields such as education, health, etc. One of the problems facing the country has been to raise the standard of living with a view to bringing about an all round improvement in the rural areas.

With this in view, several Community Projects, N. E. S. Blocks have been undertaken by the Government of India. In Bombay State, certain areas from Thana, Kolaba, Kolhapur, Sabarkantha and Mehsana Districts are included in this programme, in the first instance and now, areas from other Districts also have been included. In this connection, the Deputy Commissioner of the Development Department, Government of Bombay, had requested the Department of Nutrition, to undertake Nutrition Demonstration work in the project areas, so as to help in planning out a programme for the betterment of the nutritional status of the rural population.

The state of nutrition of an individual or a population group mostly depends on the type of food consumed. Therefore, it is considered essential to know the prevailing dietary habits or practices in a given area before planning any measure for improving the nutritional status of the people. Such examinations of food intake would reveal the dietary deficiencies. The clinical examination of persons in the areas, give the actual assessment of the nutritional status and common deficiency diseases of the people. It was, therefore, decided to undertake a diet and nutrition survey which, besides supplying the quantitative and qualitative data about the diet, would also help to throw light on socio-economic aspects of rural life.

In all, 59 families in a village Humgaon in the Karjat Community Project area were surveyed—25 in May-June 1953 and 34 in April-May 1954. The report comprises the findings of these two diet surveys, the dietary conditions in this area, and the results of the clinical nutrition survey of selected families, school children, etc. undertaken in April 1954.

2. Selection of the Project Area and the families :

Of the five Community Project Areas (then existing), satisfactory progress was observed in general, in the Karjat area (District Kolaba). This area was, therefore, selected for the diet and nutrition survey work, with the approval of the Deputy Development Commissioner.

Karjat is a small town, having a railway station of the same name on the Central Railway, about 62 miles from Bombay. The area of Karjat Block (one of the four blocks of the whole Community Project Area) is nearly 251 square miles with a population of 67,393 persons, spread over 183 villages.

The diet survey was carried out by Smt. S. Udas, Senior Nutritionist, and the nutrition survey, by Dr. V. N. Jai, Medical Officer. The statistical analysis of the data was carried out by Smt. K. Lotlikar, Statistician.

Out of these 183 villages, the population in 151 villages is less than 500. Nearly 30 per cent of this population is adivasis (mostly Karkaris). While, out of the remaining population, a large section belongs to Agricultural classes like Maratha, Kunbi and Thombare.

The village Humgaon, situated 10 miles east of Karjat Railway Station, where the work of Community Project was already in progress, was selected for the diet and nutrition survey work, in consultation with the Project Officer. The village is one and a half miles away from the nearest bus stop on the bus route from Karjat to Vanjarwadi *via*. Kadav. It is connected to Vanjarwadi by seasonal track (3 miles long) which is abondaned during monsoons. The trolly line joining the Bhivpuri Power House to Bhivpuri Railway Station passes one mile north of this village. The line is owned by the Power House and thus its use is restricted to their emplyees. However, with the special permission from the Superintendent of the Power House, it may be made available to others as a means of communication.

The area of Humgaon is under 5 square miles with a total population of about 1,250 persons. The river Pej flows through this village and divides it into two sections. The tail waters of the Bhivpuri power House have been diverted into this river, and one has to cross this water-way to reach two of the five 'wadis' of the Humgaon villages.

As regards the medical aid to these people, the dispensary of the Tata's Bhivpuri Power House is the nearest i. e. $2\frac{1}{2}$ miles from Humgaon. While the Government Dispensary at Karjat is 10 miles from this place.

The present survey work was carried out in all the five *wadis* mentioned below.—

(*i*) Vaijanath.
(*ii*) Bhivpuri.
(*iii*) Humgaon.
(*iv*) Karel.
(*v*) Tapkir.

All these *wadis* fall in the lap of Eastern Ghats which form a ridge around this village, giving it a windward side of high rainfall which averages to about 140 inches annually.

There are 240 houses in Humgaon village. As the information regarding the exact number of houses, families and number of persons in each *wadi* was not recorded separately in the office of the Mamlatdar, information supplied by the village-level worker was taken as working data. This was subsequently verified by the Senior Nutritionist in the course of her diet survey work. This information and the number of families surveyed in the year 1953 and 1954 in each *wadi* will be found in Table No. I.

TABLE I.

Statement showing the approximate number of families in each Wadi *and the number surveyed in May-June 1953 and April-May 1954.*

Name of the *Wadi*.	Total Number of families in the 'Wadi'.	Number of families surveyed		Total Number of families surveyed	Percentage surveyed.
		in May-June 1953.	in April-May 1954.		
Vaijanath* ...	105	9	16	25	27
Bhivpuri ...	30	2	10	12	40
Humgaon ...	35	4	8	12	34
Karel ...	30	5	...	5	17
Tapkir ...	40	5	...	5	13
Total ...	240	25	34	59	25

* This was selected as a base camp.

It will be seen from this Table that one out of every four families (25 per cent) from the village has been surveyed. The percentage of the families surveyed in the first three *wadis* are nearly 30-40 per cent, while in the last two *wadis* they are less than 20 per cent. These two *wadis* were not visited in April-May 1954, as it involves shifting of camp to the other side of the river.

The Brahmin middle class families have been excluded as it formed a small section of the population. Moreover, the main object of the survey was study of the dietary habits of the agriculturists.

3. Method used for the Survey :

(a) Diet Survey.

This type of work was quite new to the villagers. It was, therefore, necessary to contact and gain confidence of the villagers particularly that of the housewife in each family. It was also necessary to obtain some knowledge of the locally produced foodstuffs, such as vegetables etc. and of the existing dietary habits, etc. Before starting the diet survey work, therefore, some families were visited along with a village level worker, and some other workers in the area and the purpose of the survey was fully explained to them.

The dietary data of individual families was collected. The raw foodstuffs were weighed and measured. The Senior Nutritionist visited the families twice a day (once in the morning and once in the evening) for seven successive days at the time of preparation of meals and weighed and measured the raw foodstuffs to be consumed, to the nearest ounce (oz.).

Since the survey was concerned with the rural area where income is generally expressed in kind, it was difficult to get the figures of income per month. A new schedule for general information was, therefore, prepared for this survey wherein items such as land—' owned ' or ' rented '—cattle wealth etc. were incorporated in order to give a more precise picture about the economic status of each family. The schedule is given as Appendix C.

It has been generally observed that there has been no plate waste in the houses. In poor families left-overs from one meal are consumed at the time of second meals. In all possibility, therefore, the figures for the individual nutrients and calories, very nearly represent the actual intake per c. u. per day.

There was very little or no variation in the diet, the type of food consumed and the menu for the meal being generally the same every day. The fourteen visits paid to each of the families in the area during the seven-day period were not appreciated by the housewife who would say " what can I tell you every time, when the food eaten is the same ".

The families were visited between 7 and 10 in the morning and 5 and 7-30 in the evening.

(b) Clinical Nutrition Survey.

Some of the typical families and the children belonging to the primary school in the village (Vaijnath) were clinically examined by the Medical Officer by the 'rapid' method of clinical nutrition survey recommended by Indian Council of Medical Research. The form used for the purpose is given as Appendix D.

4. The People and General Observations on the Dietary Habits :

Most of the families in the village were Hindus. The people belong to different Intermediate class, such as 'thombare', ' kunbi ', Maratha, agri, koli and katkari, the last being the aboriginals. The guravs are the priests or Pujari who worship the God in the village temple. The language spoken is Marathi. The life of the people is centred around the activity of food production and the greater part of the year is devoted to this end.

The houses in the village were built by villagers themselves. There is a good deal of variation in the shapes and sizes of the house, depending upon the economic condition of the owners. The material used were bamboo, grass thatch, sticks or occasionally a combination of all the three. The house was generally divided into three apartments. In some cases, the third apartment was used for the cattle. The inner part of the house was the kitchen.

Generally in the case of caste Hindus, a house is occupied by a joint family, while in case of aboriginals, it is occupied only by the head of the family, his wife and children. The wants of these people are very few. The well-to-do families possess cows, buffaloes, bullocks and poultry, while poor families possess poultry only.

The better off people cook food thrice daily, while those who are not so well off cook it twice only. The staple article in the diet is rice and form a major part of it in all the three meals taken daily. The rice consumed by poor families is known as *patni* while better off people consume better type of rice known as *kolambya* rice.

A special mention may be made of the living and dietary habits of *katkari* —the aboriginals in this area. These are landless labourers who work for the whole day and subsist on whatever they earn during the day. These aboriginals are employed by the farmers seasonally and this is the best period in the life of these people, as they get sufficient food to eat, the wages being paid in the form of daily meals. During the remaining period of the year, they collect firewood, charcoal, fruits and sell them in the nearby locality.

In the morning, they eat left-overs of the previous meal or cook a little quantity of rice. The main meal is in the evening. These people get paddy in return for whatever they sell, or purchase paddy out of the cash earnings of the day. The paddy is pounded at home every evening and the rice thus secured is used for evening meals. In this way they eat fresh rice. Either soup of prawns or *dal* or *chutney* of red chillies is taken along with rice.

The peculiarities of the diets are that (*i*) there is a prepondence of cereals viz. rice and (*ii*) marked deficiency in the *protective* foods. This dependence on cereals for energy purposes of the rural population is well known and these findings corroborate with the information collected by various scientists and social workers.

The *protective* foods are consumed meagrely because they are not within their means.

5. Classification of Families :

Out of nearly 240 families from the village of Humgaon, 59 families (25 per cent) have been surveyed for the dietary habits during the summer months of May-June 1953 and April-May 1954.

All the families are Hindus belonging mostly to Intermediate and Backward Classes like Marathas, Nhavi, Koli and Katkaris. The families surveyed are all non-vegetarians in their dietary habits. All the families speak the same language viz. Marathi, or its dialect called *katkari*.

The families belong to the agricultural class, either tilling their own land or working as tenants or as labourers.

The economic condition of the families is not very satisfactory. However, they have been divided into three groups according to their economic status, as judged from the area of land under cultivation, production of grains, income from other occupations and the personal observations of the field-worker.

Group I.

Land-owners—Farmers who till their own land or are holders of rented land, the area under cultivation being more than five *bighas* or having some other means of earning such as bullock cart for hire, carpentry, small retail business etc.

Group II.

Land-tenants—Families who are mostly cultivating the land as tenants, the area being less than five *bighas*.

Group III.

Landless labourers—Labourers working on others' farms and getting wages from As. 8/- to Rs. 1-8-0 per day.

The distribution of the families in the three economic groups, number of persons covered in the survey, the average consumption units per family and the number of earning members in each group are shown in Table II. The number of children and adults, males and females in the three economic groups and the distribution of earning members according to sex are shown in Table III.

Most of the families in groups I and II keep cattle ; some of them also keep poultry.

TABLE II.

Statement showing the distribution of the families in the three economic groups, number of persons, consumption units, earning members.

Economic Group.	Number of Families.	Number of Persons.	Total No. of C. Us.	Number of C. Us. per family.	Number of earning members.
I	19	151	127·9	6·7	79
II	25	135	113·8	4·6	62
III	15	80	63·7	4·2	35
Total ...	59	366	305·4	5·2	176

TABLE III.

Statement showing the distribution of adults and children in the three economic groups according to sex and also earning members.

Economic Group.	Children (under 14 years).		Adults.		Total.		Earning members.	
	M.	F.	M.	F.	M.	F.	M.	F.
I ...	21	29	52	49	73	78	46	33
II ...	32	25	38	41	69	66	32	31
III ...	18	25	18	19	36	44	17	18
Total ...	70	79	108	109	178	188	95	82

6. Results of the Dietary Studies :

(*a*) *Average Diet.*

The average intakes of each class of foodstuffs per consumption unit (c. u.) per day for each family have been calculated from the seven-days' dietary data collected by the Senior Nutritionist during her visits to the families. These are shown in Appendix B along with other information about the families. The average diets of each family have been analysed for their nutritive values and the nutrient analyses of the diets of the individual families are also shown in Appendix B.

From these values for the average intake of foodstuffs for each family, the average values for all the families together, have been calculated to give an estimate of the average diet of the rural families of Humgaon. The diet is shown in Table IV. The table also gives the standard deviation of the respective average values of foodstuffs and the levels of intake recommended by the Nutrition Advisory Committee of the Indian Council of Medical Research in November 1944. The maximum and minimum values observed in case of each item of foodstuff have also been given to indicate the variation in the average intake values of the families.

The average diet is far from satisfactory. The average intakes of all items of foodstuffs except cereals, are much below the recommended level, particularly those of the *protective* foods like vegetables, fruits, milk and milk products and fleshy foods.

Table IV.

Statement showing the average diet, standard deviation, maximum and minimum value for each item of foodstuff and the diet recommended by the Indian Council of Medical Research.

Foodstuffs.	Diet recommended by N. A. C., I. C. M. R. in ounces.	Average diet in ounces.	Standard Deviation.	Maximum in oz.	Minimum. in oz.
Rice	.....	20·7	+5·9 —	33·1	9·8
Wheat	.....	0·1	+0·2 —	1·2	.....
Ragi	.....	0·4	+1·7 —	11·2	.....
Total Cereals ...	14·0	21·2	+6·1 —	34·9	9·8
Pulses	3·0	1·5	+1·0 —	3·9	.....
Leafy vegetables ...	4·0	0·1	+0·3 —	2·2	.....
Root vegetables ...	3·0	0·7	+0·4 —	1·7	.....
Other vegetables ...	3·0	0·3	+0·8 —	5·6	.....
Fruits	3·0	0·2	+0·7 —	3·8	.....
Sugar and Jaggery ...	2·0	1·3	+0·8 —	3·4	.....
Vegetable oils and fats ...	2·0	0·3	+0·3 —	1·9	.....
Butter and ghee ...	.....	.....	.....	.....	.....
Milk and milk products ...	10·0	1·0	+1·4 —	4·7	.....
Fish ...	3·0	0·5	+0·4 —	1·7	.....
Meat		0·1	+0·3 —	1·3	.....
Eggs	1·5	.....	.....	0·2	.....
Coconuts	.....	0·1	+0·1 —	0·6	.....
Red chillies ...	.....	0·3	+0·3 —	0·9	0·2

Table V shows the differential consumption of foodstuffs in the families. The families have been divided into (*i*) Those *not* consuming any particular foodstuff. (*ii*) Those consuming a particular foodstuff with the average intake *below* the desired level. (*iii*) Those consuming a particular foodstuff with the average intake *up to* the desired level and *above*.

TABLE V.

Statement showing the differential consumption of foodstuffs in the families surveyed.

Foodstuffs.	Number of families not including particular foodstuff in their diets.		Number of families including particular foodstuff in their diets.			
			Below desired level.		To desired level.	
	No.	Percentage.	No.	Percentage.	No.	Percentage.
Cereals	...	.....	12	20	47	80
Pulses	3	5	51	86	5	9
Leafy vegetables ...	50	85	9	15	...	.....
Root vegetablez ...	2	3	57	97	...	.....
Other vegetables ...	33	56	25	42	1	2
Fruits	49	83	8	14	2	3
Sugar and Jaggery ...	5	9	45	76	9	15
Oils and fats ...	9	15	50	85	...	.....
Butter and ghee. ...	...	.....	...	.....	...	.....
Milk and milk products ...	30	51	29	49	...	.....
Fish and Meat ...	4	7	55	93	...	.....
Eggs	55	93	4	7	...	.....

It will be noticed that there are hardly any families showing adequate consumption of foodstuffs except for cereals.

Out of 59 families 47 i. e. 80 per cent show adequate intake of cereals, 5 i. e. 9 per cent show adequate intake of pulses, 1 i. e. only 2 per cent show adequate intake of other vegetables, 2 i. e. 3 per cent show adequate intake of fruits and 9 i. e. 15 per cent show adequate intake of sugar and jaggery, while all the other intakes are either nil or inadequate in quantity.

It has already been seen that the average intake of *protective* foods is very low. It will be further seen from this table that these foodstuffs are not included in the diets of majority of the families. Leafy vegetables are not included in the diet of 50 out of 59 families i. e. 85 per cent ; other vegetables are not included in 33 i. e. 56 per cent of the diets; fruits are not included in the diets of 49 i. e. 83 per cent of the families; milk is not included in the diets of 30 i. e. 51 per cent of the families; while eggs are not included in the diets of 55 i. e 93 per cent of the families.

Table VI gives the average diets of the three economic groups and Table VII gives the nutrient analysis of these diets. It is seen from this that the intakes of all the foodstuffs decrease from economic group I to III.

There is not a great difference in the economic status of the three groups and therefore, this decrease in the intake of foodstuffs is indicative of the fact that the slightest increase in the purchasing power increases the food intake of the people in the lower strata of the economic status.

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TABLE VI.

Statement showing the average diets of the three economic groups.

Foodstuffs.	Balanced Diet, Recommended by I. C. M. R. in ounces.	Average Diet per C. U. per day of Economic Group.		
		I	II	III
		in ounces.		
Rice	.....	25·0	21·6	13·7
Wheat	.....	0·2	.....	...
Ragi	.....	1·0	.....	0·4
Total Cereals	14·0	25·2	21·6	14·1
Pulses	3·0	2·3	1·5	0·5
Leafy vegetables	4·0	0·03	0·1	0·1
Root vegetables	3·0	0·9	0·7	0·3
Other veetables	3·0	0·6	0·3	0·1
Fruits	3·0	0·3	0·2	0·2
Sugar and Jaggery ...	2·0	1·9	1·1	0·6
Vegetable oils and fats Butter and ghee ...	2·0	0·5	0·2	0·1
Milk and milk products ...	10·0	1·8	1·0	0·03
Fish (fresh)	2·0	0·3	0·2	0·1
Fish (dry)		0·3	0·3	0·3
Meat		0·1	0·1	0·1
Eggs	1·5	.....	.....	.....
Coconut	.....	0·1	0·1	.....
Other foods	.....	0·1	.....	.....
Condiments	.....	0·5	0·3	0·2

Table VII.

Statement showing the nutrient analysis of the average diets of the three economic groups.

Nutrients.		Nutrient intake recommended by I.C.M.R.	Average of all families.	Economic Group.		
				I	II	III
Total Proteins	(g)	82	70·5	90·4	71·4	43·4
Animal Proteins	(g)	16–27	7·2	8·7	7·2	4·8
Fats	(g)	85*	16·9	25·5	14·0	7·0
Carbohydrates	(g)	350*	538·6	683·5	542·7	346·7
Calcium	(g)	1·00	0·31	0·47	1·26	0·16
Phosphorus	(g)	.....	1·34	1·76	1·34	0·81
Iron	(mg)	20–30	24·0	30·0	22·6	15·0
Vitamin A	(I. U.)	3000–4000	582	638	540	382
Vitamin B1	(I. U.)	333–666	427	552	420	273
Vitamin C	(mg)	50	11	16	11	9
CALORIES		2400–3000	2588	3325	2583	1623

*Approximate requirements for a balanced diet.

Table VII shows that the diet of group I is adequate in proteins, carbohydrates, Iron, Vitamin B1, and calories; the diet of group II is adequate in carbohydrates, iron, vitamin B1 and calories. The diets of these groups are inadequate in all the other nutrients. The diet of group III is inadequate in all the nutrients.

The average diet of the families surveyed in 1953 and that of the families surveyed in 1954 are shown in Table VIII for comparison. It will be seen from this table that the average diets are almost on the same level of consumption for most of the items. There is a slight increase in the consumption of vegetables and milk; while on the other hand the consumption of fruits has decreased from 0·5 oz. per c. u. per day to 'nil'. The average diets of the three economic groups also show the same similarity of the diets with only slight variation in the average intakes.

Thus, although the diets are adequate in *quantity* in the first two groups, in *quality* they are far from satisfactory.

Table VIII.

Statement showing the average diets of families surveyed in 1953 and 1954 respectively.

Foodstuffs.	Average diet of families surveyed in 1953. (in ozs)	Average diet of families surveyed in 1954. (in ozs)
Rice	20·9	20·6
Wheat	.....	0·1
Ragi	.....	0·7
Total Cereals	20·9	21·4
Pulses	1·3	1·6
Leafy vegetables	0·02	0·1
Root vegetables	0·7	0·6
Other vegetables	0·1	0·5
Fruits	0·5	.....
Sugar and Jaggery	1·2	1·3
Vegetable oils and fats	0·2	0·3
Butter and ghee	.....	.....
Milk and milk products	0·7	1·2
Fish (Fresh)	0·2	0·2
Fish (Dry)	0·4	0·3
Meat	0·04	0·2
Eggs	0·01	.....
Coconut	0·1	0·1
Other foods	0·04	.....
Red chillies (condiment)	0·4	0·2

Compared to the diets of the lower middle class families in Girgaum, or labouring class of Naigaum or families from Municipal area, Sirur, the diet is very poor in quality. However, the diet of the rural population of the non-municipal area at Sirur is of the same level as the average diet of the present survey, except for the slightly high consumption of pulses.

(b) *Foodstuffs.*

Cereals.—The staple article in the diet is rice of different varieties. Rice consumed by poor families is known as 'patni' rice, while well-to-do families consume better type of rice known as 'kolambya' rice. Puffed rice is prepared from paddy but its consumption is limited to only the middle class families. Rice is supplemented by 'ragi' particularly during the harvest time. Wheat is consumed only on festive days.

The average consumption of cereals was 21·2 ozs. per c.u. per day, the maximum being 34·9 ozs. and minimum being 9·8 ozs. Out of the 21·2 ozs. 20·7 oz. was rice, 0·1 oz. was wheat and 0·4 oz. was 'ragi'. Only 47 families (80 per cent.) showed adequate consumption of cereals.

The general observation in the urban areas that the cereal consumption decreased in the higher economic groups does not hold in this case. The intake in fact shows an increase as the economic condition improves.

Pulses.—Field beans are the pulses chiefly grown here. These are consumed largely by the families who produce them. The other families purchase *tur, chana, chavli*, etc. from the bazaar. The field beans are generally sprouted and the outer cover is removed before these are cooked. Sometimes these are roasted and soup is prepared; while at other times these are soaked in water only for a day and are cooked with the outer cover. Sometimes *dal* is made of field beans.

The average consumption of pulses on the whole was 1·5 oz per c.u. per day, the range being from 'nil' to 3·9 ozs. Only five families (8 per cent.) showed adequate intake of pulses.

Vegetables.—During the period of survey, leafy vegetables such as *math* and '*chavit*' were consumed. Onions, potatoes and garlic were the roots commonly consumed; onions formed a part of the daily diet, the rest being consumed occasionally. Other vegetables such as brinjals, ripe tomatoes, white pumpkin, green chillies were available and were consumed by many families.

During the months of July to March, vegetables of many (wild) varieties are avilable and hence the consumption is reported to be slightly more during that period.

However, during the period of survey-summer months, the average consumption of vegetables was only 1·1 oz. per c.u. per day. Out of these, 0.1 oz. were leafy vegetables, 0·7 oz. root vegetable and 0·3 oz. other vegetables.

In only one family, the intake of fresh (non-leafy) vegetables was satisfactory. In all other families, the intake of all types of vegatables was inadequate.

A special mention may be made of *Mahuwa* fruit which is grown at the end of the winter and is used as a vegetable. As the season for this fruit was over, it was not consumed by any families. The fruit is cut into pieces and is cooked in combination with field beans. The pieces are sometimes dried in

the sun and are utilised in other seasons as a vegetable. The fruit has also another use. The seeds are dried and oil is extracted from them and this oil is consumed with *chapatis* on festive occasions. Flowers of this tree are also consumed.

Fruits.—Fruits avilable during the season were *karvand*, *jambul* and green and ripe mangoes. These are consumed more by the children (who wander in the woods in the afternoon) than by the grown-ups. It was, therefore, difficult to record the exact quantities of these foods. Only whatever was purchased or collected by the family were included in the dietary data.

Some unfamiliar varieties of green mangoes are available here fairly cheap The middle class families make different preparations from them such as jams, pickles, etc :. but a farmer's housewife does not make such preparation. She has no systematic knowledge of these preparations ; besides these preparations require purchase of costly items such as sugar, *gur*, oil and spices etc.

A very useful preparation from the cut pieces of raw green mangoes, locally known as *amboshi*, is made by drying the pieces under the sun. This stuff is used in place of tamarind in kitchen in preparations of soup, vegetables etc. Some of the Bombay trades use it for making pickles etc.

The consumption of fruits is far from satisfactory.

Sugar and Jaggery.—Sugar and *gur* are consumed in tea only. The poor families use *gur* in preparation of tea and drink it without milk ; the better class take it with sugar and milk. The average consumption of sugar and *gur* is 1·3 ozs. per c.u. per day and only 9 families have an adequate intake.

Vegetable oils.—The oils generally used are groundnut oil and Mahuwa oil. The farmer hardly uses them in the daily diet owing to their high cost. The average consumption is only 0·3 oz. per c.u. per day and far too low. from the recommended level 2·0 oz. per c.u. per day.

Butter and Ghee.—No butter or ghee was consumed.

Milk and milk products.—In summer, only moderate quantities of milk were available in the locality, with few exceptions. Generally, the milk of cows and buffaloes is mixed together. Milk was the only commodity available here at a rate (As.8 per seer) cheaper than at Bombay or in urban areas. It is sent to other places from here by those who have a good supply of it. Though this is cheap, its consumption in the families is not satisfactory. The average consumption is only 1·0 oz per c.u. per day.

Fish, Meat and Eggs.—Dried prawns and dried Bombay duck are consumed almost daily. Sometimes fresh fish is also consumed. Generally, *chutney* is made of dried Bombay duck in combination with garlic, red chillies and dried coconut, while curry is made of dried prawns. Only one family was found taking fowl and two families consuming eggs from their own poultry. Eggs are generally sold and if there is no demand then only they are consumed by the families.

Condiments.—Red chillies are consumed in a large proporation to improve the palatability of food ; poor families use this in place of vegetables and *dal*.

(c) *Nutrients.*

Proteins.—The protein intake is fairly satisfactory. In fact it is higher than the recommended level in group I and slightly lower in group II. However, in group III, it is only 1/2 the recommended level. This is mainly due to high consumption of cereals rather than *protective* foods in group I and II.

The intake of animal proteins is far below the recommended level and are contributed mainly by the dry fish in the diet. This is corroborated by the high incidence of undernourishment, specially amongst children.

Fats:—The intake of fats (about 17 g.) is far below the recommended level (85 g.) in all the three economic groups. It is nearly 1/3rd in the economic group I, 1/6th in the economic group II and 1/12th in the economic group III. This low intake of fat is corroborated by a very high incidence of the deficient subcutaneous fat amongst the children examined.

Carbohydrates.—Unlike the general observation, the yield of carbohydrates increases with the economic condition, with the result that the economic group I is nearly double the desirable level of about 350 g. This is due to the high intake of cereals.

Calcium and Phosphorus.—The intake of calcium is very low (0·31 g.) in all the three groups. This is due to the very low intake of milk and leafy vegetables. Phosphorus intake is between 0·81 g. and 1·76 g. per c. u. per day.

Iron.—The intake of iron (average 24 mg.) is satisfactory in groups I and II but is below the recommended minimum of 20 mg. in group III.

Vitamin A.—The intake of vitamin A is extremely low (582 I.U.) in all the three groups. In fact it is only 1/6th of the recommended level (3000-4000 I.U.). This is due to a very meagre intake of fresh vegetables, fruits and milk.

Vitamin B1.—The intake of vitamin B1 (average 427 I.Us.) is satisfactory in groups I and II.

Vitamin C.—The intake of vitamin C is low in all the three groups. The average value being only 11 mg., as compared to the accepted allowance of 50 mg.

Calories.—The intake of calories is adequate in group I and II. In group III, it is very low. In all the groups, cereals contribute the major portion of calories.

7. Results of Clinical Nutrition Survey :

(a) *Introduction.*

In April 1954, a clinical nutrition survey by the *rapid* method of I.C.M.R. of 12 families, which were survyed for dietetic data and of representative school children from the Vaijnath village school, was carried out by the Medical Officer, to assess the nutritional status of the population of the village.

(b) Survey of family members.

Out of the 59 families, covered by diet survey in Humgaon Village in May-June 1953 and April-May 1954, 12 families were clinically examined.

The total number of persons in the 59 families was 366. Out of these, all the members (48 persons) of the 12 families present on the day of examination have been examined i.e. nearly 12 per cent. of the persons covered by diet survey have been examined.

The distribution of these 48 persons in the three grades of nutritional status is shown in Table IX.

The nutritional status is not satisfactory on the whole. There are 40 per cent persons in grade I and 60 per cent. persons in grade II of nutritional status. There are no persons in grade III. Thus, every three out of five persons are undernourished and need better attention to raise them to the accepted standards of health and physique.

Out of the 48 persons examined, 22 are children, 9 adult males and 17 adult females. It will be observed form Table IX, that out of 9 males, 6 are in grade I and 3 in grade II without any specific sign of deficiency ; 11 females i.e. 65 per cent. are in grade I and 6 i.e. 35 per cent. are in grade II of nuritional status ; while out of 22 children only 2 (i.e. 9 per cent.) are in grade I and 29 i.e. 91 per cent. are in grade II of nutritional status. Thus the nutritional status of adult males and females is of the same level. However, the nutritional status of children is very poor.

Table X gives the incidence of deficiency signs in persons in grade II. As already mentioned, the three adult males in grade II did not show any deficiency sign. Out of the six adult females in grade II, 4 did not show any sign ; 1 showed deficient subcutaneous fat and 2, mild anaemia.

All the twenty children in grade II showed deficient subcutaneous fat and one each, mild anaemia, Bitot's spots and dental caries.

Thus, the main sign is indicative of fat deficiency and this is well corroborated by the diet survey findings.

(c) Survey of School children.

In addition to these twelve families, 44 children from the village school at Vaijanath were also examined. The total strength of the school is 113. Out of these, all the children viz. 44 (i.e. nearly 40 per cent.), who were present on the day of visit, have been examined.

The distribution of the children in the three grades of nutritional status is shown in Table XI. It will be seen from this Table that out of the 44 children, 12 i.e. 27 per cent. are in grade I and 32 i.e. 73 per cent. are in grade II of nutritional status. There are no children in grade III. Thus nearly 3 out of every four children are undernourished and need better attention to raise them to the accepted standards of health and physique.

Out of the 44 children examined, 29 are boys and 15 are girls. It will be observed from Table XI that the nutritional status of girls is better than boys. There are 21 per cent. boys in grade I and 79 per cent. in grade II, while there are 40 per cent. girls in grade I and 60 per cent. in grade II of nutritional status.

TABLES IX.

Statement showing the distribution of adult males, females and childern in the three grades of nutritional status.

	Grade I		Grade II.		Grade III.		Total.
	No.	Percentage	No.	Percentage	No.	Percentage.	
Adult males ...	6	67	3	33	...	...	9
Adult females ...	11	65	6	35	...	...	17
Children ...	2	9	20	91	...	...	22

TABLE X.

Statement showing the incidence of deficiency signs in children and females in Grade II.

Signs.	Children (20)		Females (6)		Remarks.
	No.	Percentage.	No.	Percentage.	
Deficient subcutaneous fat ...	20	100	1	17	4 adult females did not show any sign.
Mild anæmia ...	1	5	2	33	
Bitot's Spots ...	1	5	...	...	
Dental caries	1	5	...	...	

TABLE XI.

Statement showing the distribution of Boys and Girls in the three grades of nutritional status.

	Grade I.		Grade II.		Grade III.		Total.
	No.	Percentage.	No.	Percentage.	No.	Percentage.	
Boys	6	21	23	79	...	...	29
Girls	6	40	9	60	...	...	15
Total ...	12	27	32	73	...	...	44

TABLE XII.

Statement showing the incidence of deficiency signs in Boys and Girls in Grade II.

Symptom.	Boys (23)		Girls (9)		Remarks.
	No.	Percentage.	No.	Percentage.	
Deficient Subcutaneous Fat ...	19	83	4	44	4 boys and 5 girls showed no deficiency sign.
Xerosis of conjunctivae ...	1	4	...	...	
Dental caries	4	17	1	11	

Table XII gives the incidence of deficiency signs in children in grade II. Out of the 23 boys and 9 girls in grade II, 4 boys and 5 girls did not show any deficiency symptom : 19 boys and 1 girl showed deficient subcutaneous fat, 4 boys and 1 girl showed dental caries and one boy showed xerosis of conjunctivae.

It is thus seen that here also the main deficiency is indicative of fat deficiency as in the case of families, as already mentioned. This is well corroborated by the diet survey findings, viz. deficiency of *protective* foods and cooking fats in the diet.

The Medical Officer reported that, diarrhoea, malaria, asthma, constipation and enlargement of the tonsils are the common cases attended. Cirrhosis of liver is also observed occasionally. On an average, two to three cases of T.B. per month are recorded.

8. Average Heights and Weights :

A total of 487 persons form Humgaon village were weighed and their heights measured in May-June 1953. The average heights and weights of boys and girls, including adolescents upto 20 years, are shown in Table XIII, and the same have beeen represented in graph No. 1 and 2, (Appendix A) along with those of the Girgaum boys and girls.

It is seen from the graph that there is not much difference in the heights and weights of the Girgaum boys and girls and those of Humgaon boys and girls, except that in later years i.e. after 13-14 yerars, Girgaum boys and girls are a little taller and heavier than Humgaon village boys and girls with one or two exceptions.

Table XIV gives the average heights and weights of adult males and females for different age groups. The average height and weight of adult males are 63·5 inches and 98·4 lbs. respectively and the average height and weight of adult females are 57·6 inches and 85·0 lbs. Table XV gives these figures with corresponding figures of Girgaum adults representing urban population for comparison. It will be seen that Girgaum adults—both males and females are taller and heavier than Humgaon villagers.

3. Summary :

(1) A diet and nutrition study was conducted in the Community Project Area at Karjat, by the Department of Nutrition in 1953-54.

(2) A total number of 59 families in a village—Humgaon, were examined during two periods—May-June 1953 and April-May 1954. Twenty-five families, were surveyed in 1953 and thirty-four families were surveyed in 1954. These families have been classified into three economic groups.

(3) The average diets are not satisfactory, being low in *protective* foods, fats, etc. The general observation that the intake of *protective* foods increases with increase in economic status is confirmed. The diet of group III is very unsatisfactory and is low even in the consumption of cereals and consequently in calories.

Table XIH.

Statement showing the average heights and weights of boys and girls including adolescent upto 20 years from Humgaon village, Karjat.

Age in years.	Boys.			Girls.			Remarks.
	No.	Height in inches.	Weight in lbs.	No.	Height in inches.	Weight in lbs.	
Under 1 year ...	2	23·0*	8·5	7	24·1*	9·0	*Height of one boy and three girls were not noted.
1 year ...	7	26·1	15·0	13	25·8	13·9	
2 years ...	6	28·7	17·0	9	28·4	16·4	
3 years ...	15	31·7	19·3	15	32·7†	19·4	†Height of one girl was not noted.
4 years ...	10	38·1§	25·5	7	34·5	24·4	§Height of one boy was not noted.
5 years ...	8	38·2	25·8	4	38·6	28·2	
6 years ...	8	40·3	29·4	11	41·9	33·0	
7 years ...	2	44·0	35·5	10	43·4	31·2	
8 years ...	15	43·8	34·4	17	43·4	35·2	
9 years ...	12	47·8	44·3	14	44·7	39·9	
10 years ...	19	48·6	46·2	9	49·9	48·8	
11 years ...	8	52·9	54·2	7	50·2	53·1	
12 years ...	9	52·4	59·2	5	52·4	53·6	
13 years ...	4	56·9	65·0	3	57·2	69·3	
14 years ...	10	58·2	68·6	7	56·5	69·3	
15 years ...	1	56·5	68·0	...	...	...	
16 years ...	2	63·8	99·0	4	56·8	76·3	
17 years ...	3	61·5	89·3	1	58·5	90·0	
18 years ...	3	62·0	89·7	5	57·3	84·8	
19 years ...	...	...	...	5	57·7	78·6	
20 years ...	5	64·4	112·8	9	57·6	77·3	

Table XIV.

Statement showing the average heights and weights of adult males and females from Humgaon village, Karjat.

Age group in years.	Males.			Females.			Remarks.
	No.	Height in inches.	Weight in lbs.	No.	Height in inches.	Weight in lbs.	
21—25	19	63·8	104·1	26	58·7	86·4	
26—30	15	64·3	98·8	21	58·4	86·7	
31—35	12	63·5	102·7	18	58·0	83·3	
36—40	13	64·1	96·6	9	58·9	91·2	
41—45	10	63·0	99·7	3	56·5	78·7	
46—50	3	63·0	112·3	4	57·0*	75·0	*Height of one lady was not noted.
51—55	2	63·0	89·5	5	56·2	77·4	
56—60	3	60·8	86·7	1	55·5	96·0	
Above 60	9	62·9	92·9	3	60·5	83·0	
Total	86	63·5	98·4	90	57·6	85·0	

1. The diet of group I is adequate in proteins, carbohydrates, iron, vitamin B1 and calories ; the diet of group II is adequate in carbohydrates, iron, vitamin B1, and calories. These diets are inadequate in all other nutrients particularly in fats, vitamin A and calcium. The diet of group III is inadequate in all the nutrients.

5. A nutrition survey of 12 families (48 persons) and one school (44 school children) was carried out in April 1954. The nutritional status of the families is not very satisfactory. Three out of every five persons are malnourished. Men and women show better nutritional status than children and the main deficiency sign observed is deficient subcutaneous fat.

6. The nutritional status of the children in the school is also unsatisfactory, nearly three out of every four children are malnourished. The nutritional status of girls is better than that of boys. The main deficiency observed is deficient subcutaneous fat. This is well corroborated by the diet survey findings, viz. deficiency of *protective* foods and cooking fats in the diets.

10. Recommendations :

(1) *Ameliorative measures.*—(*a*) In view of the low intake of vitamin A in the diet and the prevalence of hypo-vitaminosis A, particularly amongst children, it is suggested that one tablet each of vitamin A–D and vitamin B–C (prepared by the Haffkine Institute) may be distributed to the undernourished children and the expectant and nursing mothers in the area, under medical supervision.

(*b*) In view of the generalised undernourishment amongst school children, the school authorities should attempt to secure skim milk powder for distributing at least to the undernourished children.

(2) *Educative measures.*—(*a*) The families may be induced to grow leafy and other green vegetables in kitchen gardens. The planting of trees such as *shevga*, papayya and guava have the advantage of yielding nutritious foods.

(*b*) Healthy poultry may be provided to the families for improving the breed and egg production.

(*c*) A nutrition education programme for the people in the area may be taken up. This Department will participate in any organised programme, like lectures and demonstrations on the principles of nutrition and dietetics, in regional languages.

TABLE XV.

Statement showing the average height in inches and average weight in lbs. of adult males and females in Humgaon village and Girgaum.

	Males.		Females.	
	Average height. (in inches)	Average weight. (in lbs.)	Average height. (in inches)	Average weight. (in lbs.)
Humgaon village	63·5	98·4	57·6	85·0
Girgaum, Bombay	64·8	118·7	59·0	102·1

APPENDIX A

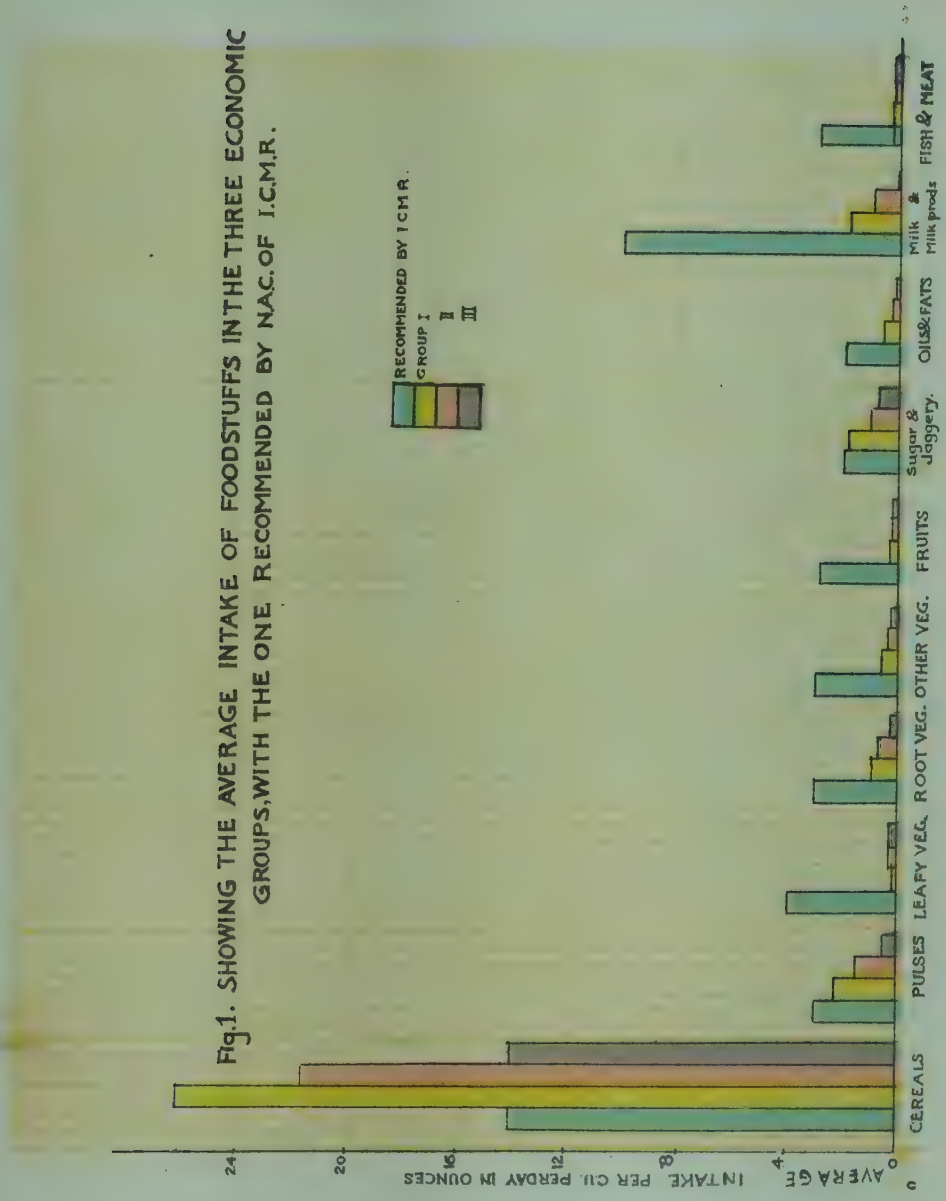
Fig.1. SHOWING THE AVERAGE INTAKE OF FOODSTUFFS IN THE THREE ECONOMIC GROUPS, WITH THE ONE RECOMMENDED BY N.A.C. OF I.C.M.R.
RECOMMENDED BY I C M R.
GROUP I
II
III
AVERAGE INTAKE PER CU. PER DAY IN OUNCES
0
4
8
12
16
20
24
CEREALS
PULSES
LEAFY VEG.
ROOT VEG.
OTHER VEG.
FRUITS
Sugar & Jaggery.
OILS & FATS
Milk & Milk prods
FISH & MEAT

APPENDIX A

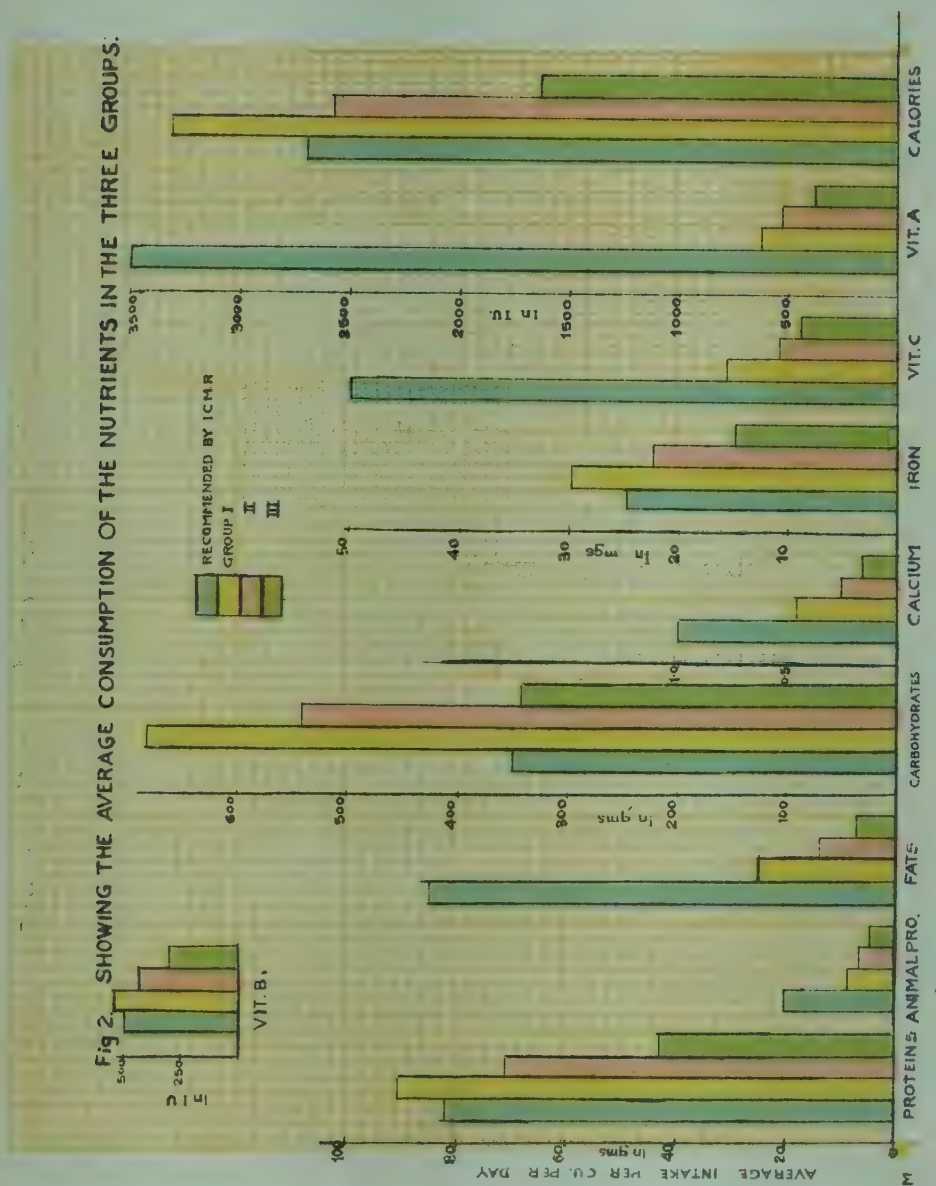
Fig 2 SHOWING THE AVERAGE CONSUMPTION OF THE NUTRIENTS IN THE THREE GROUPS.
RECOMMENDED BY I.C.M.R
GROUP I
II
III
AVERAGE INTAKE PER C.U. PER DAY
PROTEINS
ANIMAL PRO.
FATS
CARBOHYDRATES
CALCIUM
IRON
VIT.C
VIT.A
CALORIES
VIT.B1

APPENDIX B

APPENDIX

Results of the Diet Survey of families.

1.	Serial No. of the family.	1	2	3	4	5	6
2.	Caste/Community (All Hindus).	... Agri	... Agri	... Agri	... Maratha...	Maratha...	Maratha
3.	Language spoken	... Marathi...	Marathi...	Marathi...	Marathi...	Marathi...	Marathi.
4.	Vegetarian/Non-vegetarian.	Non-vegetarian.	Non-vegetarian.	Non-vegetarian.	Non-vegetarian.	Non-vegetarian.	Non-vegetarian.
5.	Occupation	... Farmer ...	Farmer & Groser's shop.	Farmer ...	Farmer ...	Farmer ...	Farmer.
6.	Number of members—						
	Adult ... M.	1	1	3+1*	4	1+1*	2
	F.	1	2	2	3	2	3
	Children ... M.	3	2	...	2	1	2
	F.	2	1	2	3	3	4
	Total ...	7	6	8	12	8	11
7.	Total C. U.'s of the family.	5·3	4·7	6·1+ 1·0	10·2	5·4+ 1·0	8·2
8.	No. of earning members—						
	M.	1	1	3	5	1	2
	F.	1	1	3	4	1	2
9.	Land owner/tenant/labourer.	Land owner.	Owner & tenant.	Tenant ...	Owner & tenant.	Tenant ...	Owner & tenant.
10.	No. of acres of land cultivated (Bhigha).	4½	4½	9	10	5	6
		Rs. a. p.	Rs. a. p.				
11.	Rent paid ...	6–12–0	1–12–6	Paid by the owner.	Paid by the owner.	Paid by the owner.	Paid by the owner.
12.	Cattle ...	9	6	11	19	10	8
13.	Poultry ...	Yes	No	Yes	No	No	Yes
14.	Total income ...	Rs. 460 per year.	Rs. 30 per mensem.	Rs. 630 per year.	Rs. 80 per mensem.	Rs. 540 per year.	Rs. 165 per mensem.

B.

residing in Humgaon Village, Karjat.

7	8	9	10	11	12	13	14	15
Maratha	Nhavi ...	Maratha.	Maratha.	Maratha.	Maratha.	Gurav ...	Gurav ...	Gurav.
Marathi.	Marathi...	Marathi...	Marathi	Marathi...	Marathi	Marathi...	Marathi	Marathi.
Non-vegetarian.	Non-vegetarian.	Non-vegetarian.	Non-vegetarian.	Non-vegetarian.	Non-vegetarian.	Non-vegetarian.	Non-vegetarian.	Non-vegetarian.
Farmer.	Barber & farmer.	Farmer ...	Labour.	Farmer & labourer.	Farmer.	Farmer ...	Farmer ...	Milkman & farmer.
3	4+1*	1	2	...	1	1	1	1
4	2	2	1	2	1	...	1	2
...	2	...	1	2	1	1	3	...
3	...	...	...	...	2	1	1	2
10	9	3	4	4	5	3	6	5
8·0	6·8+1·0	2·8	4·0	3·1	3·4	2·1	4·8	3·7
3	2	1	1	...	1	1	1	1
2	...	2	1	1	...	...	...	1
Tenant..	Tenant ...	Tenant ...	Tenant.	Tenant ...	Tenant.	Tenant ...	Land-owner and tenant.	Land-owner and tenant.
12	2½	1	2	3	1	A-2	3	A-3
Paid by the owner.	Paid by the owner.	Paid by the owner.	Paid by the owner.	Paid by the owner.	Paid by the owner.	Paid by the owner.	Paid by the owner.	Paid by the owner.
14	6	...	5	3	3	1	4	8
No	Yes	No	Yes	No	No	Yes	Yes	Yes
Rs. 180 per mensem.	Rs. 45 per mensem.	Rs. 40 per mensem.	Rs. 350 per year.	Rs. 25 per mensem.	...	Rs. 230 per year.	Rs. 7½ per mensem.	Rs. 10.

Serial No. of the family.	1	2	3	4	5	6
15. Daily consumption of foodstuffs per C. U.—						
(*i*) Cereals (rice) ...	28·2	26·4	29·4	22·7	21·6	27·9
(*ii*) Pulses ...	3·9	2·2	2·4	2·0	2·4	1·5
(*iii*) Leafy vegetables ...	...	...	...	...	...	...
(*iv*) Root vegetables ...	1·0	2·1	1·2	0·6	1·1	0·9
(*v*) Other vegetables ...	...	0·02	0·6	...	0·4	...
(*vi*) Fruits ...	0·9	...	...	...	...	0·3
(*vii*) Sugar & Jaggery ...	1·5	1·5	1·8	1·5	1·2	1·8
(*viii*) Vegetable oil & fats	0·3	0·1	1·0	0·2	0·4	0·5
(*ix*) Butter & ghee ...	...	...	...	...	...	...
(*x*) Milk & milk products.	0·8	...	...	1·6	...	3·5
(*xi*) Fish—(Fresh) ...	0·4	0·2	...	0·1	...	...
(Dried) ...	0·9	0·5	0·6	0·6	...	0·1
(*xii*) Meat ...	0·4	...	0·5	...	...	...
(*xiii*) Eggs ...	...	...	...	...	...	...
(*xiv*) Cocoanuts ...	0·2	0·3	0·1	0·1	0·02	...
(*xv*) Other foods ...	0·03	0·8	...	...	0·02	0·1
(*xvi*) Red chillies ...	0·6	0·6	0·9	0·7	0·2	...
16. Nutrition Analysis—						
(*i*) Total protein (g) ...	113·3	91·4	100·8	80·9	69·1	82·3
(*ii*) Animal protein (g)	18·7	7·9	11·0	11·3	...	4·5
(*iii*) Fats (g) ...	22·0	18·6	39·0	14·6	16·6	24·6
(*iv*) Carbohydrates (g)...	744·7	689·9	752·5	588·5	557·0	702·3
(*v*) Calcium ...	0·38	0·46	0·64	0·28	0·46	0·33
(*vi*) Phosphorus (g) ...	2·44	1·68	2·23	1·53	1·42	1·84
(*vii*) Iron (mg.) ...	32·0	28·0	33·8	24·9	22·1	23·3
(*viii*) Vitamin A (I.U.) ...	1691	307	434	391	190	612
(*ix*) Vitamin B1 (I.U.)	620	530	543	412	448	504
(*x*) Nicotinic acid (mg.)	23·5	20·3	23·6	17·7	16·7	20·6
(*xi*) Ribolflavin (ug.) ...	1064	910	1104	866	737	1052
(*xii*) Vitamin C (mg.) ...	6	3	8	3	1	4
(*xiii*) Calories ...	3630	3292	3764	2808	2654	3360
17. Distribution of Calories (in percentage)—						
(*i*) Protein ...	12	11	11	11	10	10
(*ii*) Fats ...	6	5	9	5	6	6
(*iii*) Carbohydrates ...	82	84	80	84	84	84

B—*contd.*

7	8	9	10	11	12	13	14	15
30·3	26·0	21·0	20·8	13·9	29·5	18·2	22·9	23·6
1·5	2·2	0·4	1·8	0·4	2·3	1·8	1·5	1·1
...	...	...	...	...	0·2	...	...	...
0·7	1·2	0·1	1·2	0·2	1·1	0·9	0·8	0.6
...	...	...	...	...	...	0·2	1·0	0·01
...	4·0	...	1·9	...	...	3·0	0·5	...
3·8	2·0	0·8	0·9	0·3	1·8	1·9	...	...
0·5	0·3	0·1	0·4	0·02	0·4	0·3	0·1	...
...	...	...	...	...	...	...	...	...
1·9	1·0	...	...	1·7	1·8	1·1	...	1·8
0·2	0·6	0·8	0·1	0·04	...	...	0·4	0·8
0·2	0·4	...	0·2	0·3	0·1	0·4	0·4	0·4
...	...	...	...	...	...	...	...	...
...	...	...	...	...	0·1	...	...	...
...	0·1	...	...	...	...	0·5	...	0·01
0·1	...	...	...	...	...	...	...	...
0·5	0·4	0·4	0·4	0·2	0·5	0·4	0·6	0·3
90·1	87·9	64·8	67·2	42·9	90·8	65·5	75·7	80·9
5·6	9·1	11·2	4·2	5·8	3·5	6·9	8·8	15·8
23·5	16·9	8·1	16·6	5·5	20·5	21·0	7·7	9·0
808·4	691·5	497·1	530·3	327·0	750·0	504·8	544·1	548·4
0·32	0·57	0·16	0·33	0·15	0·48	0·27	0·19	0·28
1·81	2.25	1·15	1·37	0·99	1·93	1·43	1·49	1·45
38·1	30·3	20·0	20·6	13·1	34·6	22·7	20·2	20·1
612	5898	202	2783	193	827	4376	833	175
540	513	375	83	263	585	319	403	415
23·9	20·8	15·2	16·0	10·2	22·7	14·3	17·1	17·4
1162	1002	720	742	570	1115	682	786	809
3	19	...	10	2	9	15	10	1
3805	3270	2320	2540	1557	3548	2470	2549	2598
9	11	11	11	13	10	10	12	13
6	5	3	6	3	5	8	3	3
85	84	86	83	84	85	82	85	84

APPENDIX

1. Serial Number of the family.	16	17	18	19	20
2. Caste/Community ...	Koli				Katkari.
3. Language spoken ...	Marathi				Katkari
4. Vegetarian Non-vegetarian.	Non-vegetarian				
5. Occupation ...	Farmer		Labourer.	Farmer.	Labourer
6. Number of member—					
Adult M ...	1	.....	1	3	1
F ...	3	1	1	1	1
Children					
M ...	1	.....	2	.....	.....
F ...	1	.....	2	2	1
Total ...	6	1	6	6	3
7. Total C. U.'s of the family ...	5·2	0·9	5·3	4·8	2·6
8. Number of earning members M ...	1	.....	1	3	1
F ...	3	.....	1	1	1
9. Landowner/tenant/labourer.	Tenant	.....	Tenant	Tenant	Labourer
10. Number of acres of land cultivated (Bighas).	3½ B.	.....	2 B	4 B	.....
11. Rent paid ...	.....	.....	.....	.....	.....
12. Cattle ...	12	*Nil.*	5	16	.....
13. Poultry ...	No.	No.	Yes.	Yes.	No.
14. Total Income ...	Rs. 35 per mensem.	.....	.....	Rs. 60 per mensem.	D. A. As. 8 to Rs. 1-8
15. *Daily consumption of foodstuffs per C. U. (in ozs.)*					
(*i*) Cereals ...	23·5	9·9	19·2	26·4	13·5
(*ii*) Pulses ...	0·8	0·5	0·9	2·7	.....
(*iii*) Leafy vegetables ...	.....	.....	0·2	.....	.....
(*iv*) Root vegetables ...	0·3	0·2	0·7	0·1	0·7
(*v*) Other vegetables ...	.....	.....	.....	.....	.....
(*vi*) Fruits ...	.....	.....	.....	.....	.....

3—*contd.*

21	22	23	24	25	26	27
		Katkari				Agriculturist.
		Katkari				Marathi.
		Non-vegetarian				
		Labourer				Farmer.
		(Fish catching)				
1 / 1	1 / ...	1* / 1	1 / 1	1 / 1	4+1 / 3	1 / 3
1 / 3	3 / 1	1 / 4	3 / 2	3+1* / 1	1 / ...	1 / 1
6	5	7	7	7	9	6
4·9	3·4	4.0+1·0	5·2	4·4+1·0	8·7	4·8
1 / 1	1 / ...	1 / 1	2 / 1	2 / 1	5 / 3	1 / 3
	Tenant and Labourer.	Labourer.	Tenant and Labourer.		Landowner.	.....
.....	3A	.....	1/4A	1B.	4A 20G	4A 20G
.....	.....	.....	.....	.....	Rs. 15	Rs. 15
.....	.....	.....	.....	.....	13	3
No.	Yes.	No.	Yes.	No.	Yes.	Yes.
Daily Rs. 1-4/1-8	Daily As. 8	Daily As. 8	Daily As. 4	Rs. 8 per year.	Rs. 900 1000 per year.	Rs. 800 1,000 per year.
10·5	15·6	11·7	17·8	11·9	27·4	28·3
.....	0·2	...	0·6	0·3	3·3	2·2
.....	.....	.....	.....	.....	.....	.....
0·5	0·1	0·1	0·5	0·1	1·1	0·1
.....	.....	.....	.....	.....	.....	.....
0·3	.....	0·6	1·7	.....	.....	.....

	16	17	18	19	20
(*vii*) Sugar and Jaggery	1·7	0·5	1·4	2·4	1·0
(*viii*) Veg. oil and fats...	0·2	.....	0·2	.....	.....
(*ix*) Butter and ghee ...	.....	.....	.....	.....	.....
(*x*) Milk and milk products.	0·7	.....	0·8	1·7	.....
(*xi*) Fish (Fresh) ...	.....	.....	0·03	0·1	0·2
(Dried) ...	0·6	0·2	0·2	0·2	0·4
(*xii*) Meat ...	.....	.....	.....	.....	.....
(*xiii*) Eggs ...	.....	.....	0·2	.....	.....
(*xiv*) Coconuts ...	.....	.....	.....	.....	.....
(*xv*) Other foods ...	0·01	.....	.....	.....	.....
(*xvi*) Red Chillies ...	0·2	0·3	0·2	0·2	0·4

16. *Nutrient Analysis*—

(*i*) Total Protein (*g*) ...	72·3	30·2	59·2	89·7	40·2
(*ii*) Animal Protein (*g*)	9·1	2.8	4·9	5·8	6·8
(*iii*) Fats (*g*) ...	9·0	16·7	11·9	7·5	3·6
(*iv*) Carbohydrates(*g*)...	582·9	230·8	483·5	701·7	332·7
(*v*) Calcium (*g*) ...	0·21	0·08	0·23	0·24	0·12
(*vi*) Phosphorus (*g*) ...	1·50	0·76	1·14	1·73	0·77
(*vii*) Iron (mg.)...	25·6	9·0	22·2	25·0	14·5
(*viii*) Vitamin A (I. U.)	291	103	1,105	221	182
(*ix*) Vitamin B1 (I. U.)	432	190	340	464	238
(*x*) Nicotinic acid (mg.)	17·5	7·3	14·4	20·2	9·7
(*xi*) Riboflavin (ug.) ...	839	344	654	995	463
(*xii*) Vitamin C (mg.) ...	2	.....	1	2	1
(*xiii*) Calories ...	2,701	1,194	2,278	3,233	1,524

17. *Distribution of Calories (in percentage)*—

(*i*) Protein ...	11	10	10	11	11
(*ii*) Fat ...	3	13	5	2	2
(*iii*) Carbohydrates ...	86	77	85	87	87

B—*contd.*

21	22	23	24	25	26	27
0·8	.....	0·1	0·9	0·9	1·8	1·7
.....	0·1	.....	.....	.....	0·5	1·9
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	0·9	.....
.....	.....	0·1	0·6	.....	.....	.....
0·6	0·2	0·2	0·6	0·3	0·1	0·7
.....	.....	.....	.....	.....	0·5	1.0
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	0·01	.....	0·05	0.00
.....	.....	.....	.....	.....	0·02	0.4
0·2	0·2	.....	0·4	0·2	0·5	0.6
35·1	42·6	31·8	59·0	35·9	95·3	97·4
8·4	2·8	3·4	11·3	4·2	4·1	11·0
2·8	4·7	2·3	5·08	2·8	24·4	65·1
259·3	350·3	263·9	440·7	294·9	719·0	715·6
0·10	0·08	0·05	0·33	0·10	0·34	0·27
0·59	0·86	0·59	1·07	0·85	1·79	1·81
10·9	12·9	9·72	16·8	13·2	33·8	32·5
539	72	848	2,528	150	437	344
188	275	187	322	220	570	530
7·6	11·0	7·7	13·3	8·8	.....	.....
365	530	375	635	405	.....	.....
1	.....	2	8	.....	10	8
1,203	1,614	1,203	2,044	1,340	3,477	3,838
12	11	10	11	11	11	10
2	3	2	2	2	6	15
86	86	88	87	87	83	75

APPENDIX

1. Serial Number of the family.		28	29	30	31	32
2. Caste/Community	...	Maratha		Maratha		Gurav
3. Language spoken	...	Marathi				
4. Vegetarian /Non-vegetarian.		Non-Vegetarian				
5. Occupation	...	Farmer				
6. Number of member—						
Adult M	...	6	...	2	2+1	3+1
F	...	5	3	2	2	2
Children						
M	...	1	...	3	1	...
F	...	1	...	2	...	2
Total	...	12	3	9	6	8
7. Total C. U.'s of the family.		11·2	2·7	7·1	5·2	7·3
8. Number of earning members. M	...	3	...	3	2	3
F	...	...	3	1	1	1
9. Landowner/tenant/labourer.		Landowner and tenant.		Tenant.		
10. Number of acres of land cultivated (Bighas).		3A+4A	10A	5A	A5	A5
11. Rent paid	...	7	1	1	3	6
12. Cattle	...	Yes.	Yes.	Yes.	Yes.	No.
13. Poultry	...	...	...	...	...	...
14. Total Income	...	Rs. 3,600 per year.	900 per year.	Rs. 800 per year.	Rs. 1,000 per year.	Rs. 1,200 per year.
15. *Daily consumption of foodstuffs per C. U. in (in ozs.)*						
(*i*) Cereals	...	25·8	34·9	25·3	24·6	22·9
(*ii*) Pulses	...	2·5	1·9	1·9	3·5	0·8
(*iii*) Leafy vegetables.		0·2	.....	0·2	0·2	.....
(*iv*) Root vegetables	...	0·1	1·1	0·8	1·7	0·5
(*v*) Other vegetables.		.....	1·5	0·3	.....	5·6
(*vi*) Fruits	...	.....	.....	.....	.....	.....

B—contd.

33	34	35	36	37	38
Gurav		Koli		Agri	
Marathi					
Non-vegetarian					
Farmer					
4 / 3	3 / 1	2 / 2	2+1 / 4	3 / 2	1 / 1
1 / 1 / 9	1 / 1 / 6	1 / 1 / 6	..... / 2 / 9	3 / 2 / 10	..... / 3 / 5
8·3	4·9	4·9	8·1	8·8	4·0
4 / 1	3 / 1	2 / 2	2 / 3	3 / 3	1 / 1
Tenant					
A5	A5	A5	A4½	and Landowner Own 1/2A. Rented 3½ A.	and Land-Owner Own 3A A.1 20G
16	...	3	14	9	4
Yes.	No.	Yes		Yes	Yes
...	...	...	...	...	...
Rs. 800 per year.	Rs. 1,050 per year.	Rs. 700 per year.	Rs. 900 per year.	Rs. 1,000 per year.	Rs. 600 to 800 p. y.
24·9	25·0	19·5	25·6	24·7	23·5
3·6	1·8	2·1	1·5	2·9	1·7
.....	.....	.....	.....	.....	.....
0·7	0·6	0·8	1·1	0·6	1·1
0·3	1·0	.....	1·5	.....	1·1
.....	0·2	.....	.....	.....	.....

	28	29	30	31	32
(*vii*) Sugar and Jaggery	0·7	0·3	1·4	2·9	3·0
(*viii*) Veg. oil and fats ...	0·04	0·5	0·3	0·3	0·2
(*ix*) Butter and ghee ...	.....	.....	.....	.....	.....
(*x*) Milk and milk products	1·5	4·4	1·6	3·1	0·7
(*xi*) Fish (Fresh) ...	0·3	1·1	0·5	0·6	.....
(Dried)					
(*xii*) Meat ...	.....	.....	.....	0·07	.....
(*xiii*) Eggs ...	.....	.....	.....	.....	0·3
(*xiv*) Coconuts ...	0·2	0·2	0·2	.....	.....
(*xv*) Other foods ...	.....	.....	.....	.....	.....
(*xvi*) Red Chillies	0·4	0·8	0·3	0·3	0·3
16. *Nutrient Analysis*—					
(*i*) Total Protein (*g*) ...	84·6	103·7	82·8	96·1	66·3
(*ii*) Animal Protein(*g*)	5·2	6·0	6·6	10·0	0·8
(*iii*) Fats (*g*) ...	22·9	32·9	19·6	20·3	13·9
(*iv*) Carbohydrates (*g*)	635·2	827·9	639·4	692·1	616·7
(*v*) Calcium (*g*) ...	0·55	1·50	0·34	0·54	0·73
(*vi*) Phosphorus ...	1·72	2·50	1·58	1·88	7·58
(*vii*) Iron (mg.) ...	29·4	42·8	21·8	36·3	36·1
(*viii*) Vitamin A (I. U.)	662	678	655	1,233	584
(*ix*) Vitamin B_1 (I. U.)	554	926	498	531	553
(*x*) Nitoctinic acid (mg.)					
(*xi*) Riboflavin (ug.) ...					
(*xii*) Vitamin C (mg.)	9	21	11	13	45
(*xiii*) Calories ...	3,085	4,023	3,065	3,335	2,857
17. *Distribution of calories (in percentage.)*					
(*i*) Protein ...	11	10	11	12	9
(*ii*) Fats ...	7	7	6	5	4
(*iii*) Carbohydrates ...	82	83	83	83	87

(Nicotinic acid and riboflavin contents have not been calculated for family nos 26-59).

B—*contd.*

33	34	35	36	37	38
2·6	3·2	2·1	1·5	1·4	.....
0·3	0·3	0·3	0·4	0·5	0·2
.....	.....	.....	.....	.....	.....
4·7	2·4	2·0	3·9	.....	.....
1·2	1·1	0·6	0·4	0·4	0·6
.....	.....	.....	.....	0·5	0·6
.....	0·1	.....	.....	.....	.....
0·3	.....	.....	0·4	0·05	0·1
.....	.....	.....	.....	.....	.....
0·7	0·3	0·6	0·5	0·5	0·2
106·8	89·5	66·6	83·7	85·6	82·0
16·9	13·9	6·1	7·1	3·6	11·6
19·3	19·2	19·7	28·9	22·4	14·6
695·8	679·8	534·9	650·1	639·3	559·0
0·63	0·41	0·40	0·45	0·26	0·21
2·08	1·72	1·33	1·75	1·62	1·44
35·3	33·6	29·2	28·2	28·2	22·0
689	554	544	398	303	176
540	467	400	457	473	453
		...			
		...			
4	6	10	17	8	15
3,384	3,250	2,583	3,195	3,102	2,696
13	11	10	11	11	12
5	5	7	8	7	5
82	84	83	81	82	83

APPENDIX

1. Serial No. of the family		39	40	41	42
2. Caste/Community	...	Maratha			
3. Language spoken	...	Marathi			
4. Veg./Non-vegetarian.		Non-Vegetarian			
5. Occupation	...	Farmer			
			Gavandi	Labourer.	
6. Number of member—					
Adult	M ...	2	2	1	3
	F ...	3	2	2	3
Children	M ...	1	1	...	4
	F ...	3	1	...	1
Total	...	9	5	3	11
7. Total C. Us. of the family	...	7.0	4.2	2.9	9.6
8. Number of earning members	M ...	2	1	1	2
	F ...	2	1	2	2
9. Landowner/Tenant Labour					and Landowner.
10. Number of acres of land cultivated.		3A	2A	2A	Own 2A R. 1A.
11. Rent paid	...				
12. Cattle	...	3	.....	.....	5
13. Poultry	...	Yes.	Yes.	Yes.	Yes.
14. Total Income	...	Rs. 700 p. y.	.....	.....	Rs. 600 p. y.

15. *Daily consumption of foodstuffs per C. U.* (*in ozs*).

(*i*) Cereals	...	14·7	26·6	21·3	23·1
(*ii*) Pulses	...	0·9	1·2	3·5	1·8
(*iii*) Leafy vegetables	...	.....	.....	.....	.....
(*iv*) Root vegetables	...	0·6	1·1	0·7	0·2
(*v*) Other vegetables	...	0·1	0·4	.....	0·2
(*vi*) Fruits	...	.....	.....	.....	.....

B—*contd.*

43	44	45	46	47	48
Maratha			Gurav		Koli.
Marathi					
Non-Vegetarian					
Farmer					
	and Labourer.		Farmer.		and labourer.
2 / 1	1+1 / 2	1+1 / 2	4 / 2	..... / 3	2 / 1
3 / ... / 6	2 / ... / 6	2 / ... / 6	1 / ... / 7	1 / ... / 4	1 / 1 / 5
5·4	5·5	5·5	6·3	3·6	4·0
1 / 1	1 / 1	1 / 1	4 / 1	... / 3	1 / 1
				Tenant.	
2A.	4A. 20G.	4A.	2½A.	2A.	2A.
4	4	4	10	1	3
.....	Yes.	Yes.	Yes.	No.	.....
Rs. 500 p. y.	Rs. 800 p. y.	Rs. 600p. y.	Rs. 350 p. y.	Rs. 350 p. y.	Rs. 400 p. y.
	Rs. 480 Tonga.				
19·9	21·1	22·2	33·1	16·5	22·3
2·1	2·4	1·2	1·3	0·5	1·4
0·2	.....	.....	.....	0·5	0·5
0·5	1·7	0·4	0·7	1·5	0·6
0·6	.....	0·4	.....	1·0	0·4
.....	.....	.....	.....	.....	.....

	39	40	41	42
(*vii*) Sugar and Jaggery	1·1	0·7	1·3	1·0
(*viii*) Veg. oil and fats	0·2	0·3	0·6	0·1
(*ix*) Butter and ghee ...	.....	.....	.....	.....
(*x*) Milk and milk pro-products.	1·1	1·9	.....	.....
(*xi*) Fish (Fresh) ... (Dried)	0·2	0·3	0·3	0·3
(*xiii*) Meat ...	.....	.....	.....	.....
(*xiii*) Eggs ...	.....	.....	.....	.....
(*xiv*) Other foods ...	.....	.....	.....	.....
(*xv*) Other foods ...	.....	.....	.....	.....
(*xvi*) Red Chillies ...	0·2	0·4	0·4	0·2
16. *Nutrient Analysis*—				
(*i*) Total protein (*g*) ...	45·9	78·8	82·4	71·8
(*ii*) Animal Protein (*g*).	2·8	3·9	4·2	2·0
(*iii*) Fats (*g*) ...	10·7	18·4	22·6	7·8
(*iv*) Carbohydrates (*g*)	377·3	637·9	564·5	572·4
(*v*) Calcium (*g*) ...	0·17	0·31	0·26	0·16
(*vi*) Phosphorus (*g*) ...	0·92	1·58	1·53	1·40
(*vii*) Iron (Mg.) ...	16·1	25·7	25.9	24·0
(*viii*) Vitamin A (I. U.)...	182	242	295	183
(*ix*) Vitamin BI (I. U.)	255	485	445	415
(*x*) Vitamin C (mg.)	7	12	8	9
(*xi*) Calories ...	1,789	3,032	2,790	2,647
17. *Distribution of calories (in percentage.)*				
(*i*) Protein ...	10	10	12	11
(*ii*) Fats ...	5	5	7	3
(*iii*) Carbohydrates ...	85	85	81	86

B—*contd.*

43	44	45	46	47	48
1·4	0·6	0·4	1·5	0·9	1·0
0·3	0·4	0·1	0·3	0·2	0·1
.....	.....	.....	.....	.....	.....
.....	4·5	2·9	4·7	1·2	.....
0·3	0·6	0·9	1·0	0·6	0·3
0·2	1·3	0·3	.....	.....	.....
.....	.....	.....	.....	.....	.....
0·2	0·6	0·1	.....	.....	.....
.....	.....	.....	.....	.....	.....
0·3	0·4	0·5	0·3	0·4	0·3
70·7	87·8	78·4	107·3	53·0	69·8
5·3	20·6	14·5	16·5	6·7	4·2
16·6	38·5	16·0	23·7	11·9	8·2
518·9	543·2	532·4	806·1	410·2	551·0
0·25	0·60	0·45	0·51	0·25	0·22
1·32	1·58	1·44	2·09	1·04	1·29
25·1	25·0	23·2	32·7	18·2	25·5
618	494	343	384	243	1,023
417	479	446	578	314	429
13	12	8	6	18	18
2,508	2,870	2,587	3,867	1,959	2,557
11	12	12	11	11	11
6	12	6	6	5	3
83	76	82	83	84	86

APPENDIX

		49	50	51	52	53
1. Serial No. of the family.						
2. Caste/Community ...		Koli			Maratha	
3. Language spoken ...		Marathi				
4. Vegetarian/Non-vegetarian.		Non-vegetarian				
5. Occupation ...		Farmer	Labourer.	Carpenter.	Labourer.	Labourer.
6. No. of member—						
Adult ...	M	1	1	1	.....	1
	F	1	1	1	1	1
Children ...						
	M	1	1	1	.....	.....
	F	1	2	.....	2	.....
Total ...		4	5	3	3	2
7. Total C. Us. of the family.		3·1	3·8	2·3	2·1	2·0
8. No. of earning members.	M	1	1	1	.....	.....
	F	1	1	1	1	1
9. Landowner/Tenant/ Labourer. (Bighas)		Landowner.	Tenant and Labourer.		Labourer.	Landowner
10. No. of acres of land cultivated.		2A.	2A.	.....	.....	G. 10
11. Rent paid		.....	.....	.....	.....	.....
12. Cattle ...		.....	.....	.....	.....	.....
13. Poultry ...		.....	No.	No.	.....	.....
14. Total Income ...			Rs. 400 p. y.	Rs. 20 p. m.	Rs. 10 +15 p. m.	Rs. 15 p. m.
15. *Daily consumption food stuffs per C. U. (in ozs.)*—						
(*i*) Cereals ...		25·3	19·9	12·4	20·6	13·0
(*ii*) Pulses ...		2·3	0·5	1·3	1·5	0·2
(*iii*) Leafy vegetables		.....	.....	.....	2·2	.....
(*iv*) Root do ...		0·9	0·1	0·3	.....	.....
(*v*) Other do. ...		.....	0·3	0·4	0·1	0·4
(*vi*) Fruits ...		.....	.....	.....	.....	.....

B—*contd.*

54	55	56	57	58	59
Katkari					
Katkari					
Non-Vegetarian					
Labourer					
1 / 2	1 / 1	1 / 1	5 / 5	1 / 1	1 / 1
1 / 3 / 7	..... / ..... / 2	3 / .....1 / 6	..... / 4 / 14	1 / 2 / 5	..... / 1 / 3
5·7	2·0	4·3	12·2	4·4	2·2
1 / 1	1 / 1	1 / 1	3 / 5	1 / 1	1 / 1
Labourer.				Tenant and labourer.	Labourer.
1A.	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
Rs. 300 p. y.	.....	.....	.....	As. 12 p. day.	.....
11·5	20·4	18·1	10·2	9·8	13·8
0·3	1·3	1·2	0·3	0·1	0·1
.....	.....	.....	.....	.....	.....
0·2	0·8	0·5	0·2	0·3	0·5
.....	.....	0·1	0·4	.....	.....
.....	.....	.....	.....	.....	.....

	49	50	51	52	53
(*vii*) Sugar and Jaggery	3·4	0·3	1·3	1·9	.....
(*viii*) Vegetable oil and fats.	0·4	0·02	0·5	0·3	.....
(*ix*) Butter and ghee	.....	.....	.....	.....	.....
(*x*) Milk and milk products.	.....	.....	0·5	.....	.....
(*xi*) Fish (Fresh) ... (Dried)	0·9	0·2	0·3	.....	.....
(*xii*) Meat ...	.....	.....	.....	.....	.....
(*xiii*) Eggs ...	.....	.....	.....	.....	.....
(*xiv*) Coconuts ...	.....	.....	.....	.....	.....
(*xv*) Other foods ...	.....	.....	.....	.....	.....
(*xvi*) Red Chillies ...	0·4	0·3	0·3	0·2	0·3
16. *Nutrient Analysis*—					
(*i*) Total protein (g)	91·9	53·5	44·3	63·9	34·2
(*ii*) Animal protein (g)	12·6	1·1	4·8	.....	.....
(*iii*) Fats (g)	17·9	6·0	18·8	14·2	2·9
(*iv*) Crabohydrates (g)	697·1	459·1	336·3	546·8	294·2
(*v*) Calcium (g)	0·30	0·12	0·12	0·52	0·07
(*vi*) Phosphorus ...	1·62	1·06	0·79	1·28	0·68
(*vii*) Iron (mg)	34·0	18·9	17·5	35·0	11·2
(*viii*) Vitamin A (I. U.)	445	176	287	3,766	84
(*ix*) Vitamin BI (I. U.)	476	376	261	460	232
(*x*) Vitamin C (mg)	9	6	8	45	7
(*xi*) Calories ...	3,317	2,104	1,692	2,571	[illegible]
17. *Distribution of calories (in percentage)*—					
(*i*) Protein ...	11	10	10	10	10
(*ii*) Fats ...	5	3	10	5	[illegible]
(*iii*) Carbohydrates ...	84	87	80	85	[illegible]

B—*concld.*

54	55	56	57	58	59
0·4	1·0	0·9	0·7	0·3	0·7
0·1	0·5	0·1	0·1	0·1	0·2
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
0·2	1·7	0·2	0·1	0·1	0·2
.....	.....	0·6	0·7	0·3	0·5
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	0·03	.....
.....	.....	0·2	.....	.....	.....
0·2	0·3	0·2	0·2	0·3	0·2
33·5	77·6	56·2	34·5	28·3	40·4
2·8	17·5	6·0	5·1	2·4	5·4
5·4	19·6	10·6	7·8	6·6	10·5
272·6	506·4	448·3	252·6	230·4	329·3
0·08	0·20	0·55	0·10	0·08	0·10
0·62	1·34	1·18	0·71	0·54	0·74
11·1	21·1	21·5	9·6	9·28	13·6
100	204	240	125	90	115
209	373	440	199	175	249
3	6	12	7	5	5
1,273	2,512	2,114	1,210	1,094	1,573
10	12	10	11	10	10
4	7	5	6	5	6
86	81	85	83	85	84

APPENDIX C.

Department of Nutrition, Government of Bombay.

Schedule for diet surveys in rural areas.

Serial No. .....

Name of the Head of the family.....

Address : ..... Village : .....Taluka : .....Dist.....

Rent Rs. .....No. of rooms occupied : .....

Caste of Cummunity : .....Occupation : .....

Number of earning members in the family : .....Males.....Females.

Mother tongue : .....Vegetarian/Non-vegetarian.

Place of origin : .....Village : .....District : .....

How long has the family been staying in.....

Landowner/Tenant. Number of acres of land : .....

Annual Agricultural tax/Rent Rs.....

Procurements of grains/ Varieties : .....Quantity : .....Year :.....

Cattlewealth : Bullocks : .....Cows : .....Others : .....

Poultry Yes/No

Total income of the family (per month) : .....

Approximate expenditure on food per month Home : Rs.....Outside : Rs.....

Expenditure on the following items :—

(*i*) Clothes :.....

(*ii*) Entertainment : .....

(*iii*) Feedingstuffs for cattle : .....

Health matters :

(*i*) Water supply : .....

(*ii*) Common ailments in the family : ....

General Remarks :—

No.	Name.	Sex.	Age.	Relation with the head of the family	If earning the income per month.	Whether takes food outside	Expenditure on outside food.	Remarks if any
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								

Total quantity Foods Consumed by the Family in lb. (give other units, wherever necessary).

	Food groups	Days	1st		2nd		3rd		4th		5th		6th		7th		Total	Remarks
			Morn-ing	Eve-ning	Morn-ing	Eve-ning	Morn-ing	Eve-ning	Morn-ing	Eve-ning	Morn-ing	Eve-ning	Morn-ning	Eve-ning	Morn-ing	Eve-ning		
C E R E A L	Rice (polished)		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Rice unpolished)		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Wheat		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Jowar		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Other cereals		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Pulses— 'Tur'		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Chana		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Other pulses		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Leafy vegetables		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Roots and Tubers— Potatoes		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Onions		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Others		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Other vegetables		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	

Food Groups	Days	1st		2nd		3rd		4th		5th		6th		7th		Total	Remarks
		M.	E.	M.	E.	M.	E.	M.	M.	E.	M.	E.	E.	M.	E.		
Sugar		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Jaggery		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Vegetable Oils—																	
Groundnut oil		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Til oil		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Coconut oil		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Hydrogenated vegetable oils		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Other oils		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Butter		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Ghee		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Milk products—																	
Milk		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Curds		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Buttermilk		...	...	...	...	...	...	...	...	...	...	...	...	...	..		

Fleshy foods—															
Fish	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Meat	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Eggs	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Nuts and oilseeds—															
Groundnuts	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Coconuts	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Fruits	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dried fruits	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Condiments	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other foods	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Foods taken outside home	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Absentees for the particular meals	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Guests—															
Males	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Females (with approximately ages).	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Name of the investigator :

Period of Survey.....days (from.....to.....)

DEPARTMENT OF NUTRITION, GOVERNMENT OF BOMBAY.

Form for the compilation of Dietary Data.

Serial No. of the Family :

Adult Males C. Us. :

Adult Females C. Us. :

Children C. Us. :

Total C. Us. of the family :

Total C. Us. for seven days :

Correction to the total C. Us. (for guests and Absentees) :

Corrected C. Us. :

Foodstuffs.	Total for seven days (in ozs.).	Quantity per C. U. per day (in ozs.).	Remarks.
Rice Polished ...	.....	.....	.....
Rice Unpolished ...	.....	.....	.....
Wheat/Bread ...	.....	.....	.....
Jowar ...	.....	.....	.....
Other cereals ...	.....	.....	.....
'Tur' dal ...	.....	.....	.....
'Chana' dal ...	.....	.....	.....
Other pulses ...	.....	.....	.....
Leafy vegetables ...	.....	.....	.....
Potatoes ...	.....	.....	.....
Onions ...	.....	.....	.....
Other Roots and Tubers ...	.....	.....	.....
Other vegetables ...	.....	.....	.....
Sugar ...	.....	.....	.....

Foodstuffs.	Total for seven days (in ozs.).	Quantity per C. U. per day (in ozs.).	Remarks.
Jaggery ...	.....	.....	.....
Groundnut oil ...	.....	.....	.....
Til oil ...	.....	.....	.....
Coconut oil ...	.....	.....	.....
Hydrogenated oils ...	.....	.....	.....
Other Oils ...	.....	.....	.....
Butter ...	.....	.....	.....
Ghee ...	.....	.....	.....
Milk ...	.....	.....	.....
Curds ...	.....	.....	.....
Buttermilk ...	.....	.....	.....
Fish ...	.....	.....	.....
Meat ...	.....	.....	.....
Eggs ...	.....	.....	.....
Groundnuts ...	.....	.....	.....
Coconuts ...	.....	.....	.....
Other nuts ...	.....	.....	.....
Fruits ...	.....	.....	.....
Dried fruits ...	.....	.....	.....
Condiments ...	.....	.....	.....
Other foods ...	.....	.....	.....

APPENDIX D.

Department of Nutrition, Government of Bombay.

Schedule for Rapid Clinical Nutrition Survey.

Serial No..... Date .....

Name : .....

Age :.....Years.....Months. Sex :..... Place :.....

Weight : lbs. Height : inches.

Haemoglobin : g/100 ml. Std. Div.

Grade I

Grade II

(*a*) Poor musculature.

(*b*) Deficient subcutaneous fat.

(*c*) Mild anaemia.

(*d*) Lack of interest in surroundings.

(*e*) Mild signs of not more than of the specific nutritional disorders or deficiencies mentioned under Grade III.

Grade III

(*a*) Gross muscular wasting.

(*b*) (*i*) Xerosis or pigmentation of conjunctive,
(*ii*) Bitots' spots.
(*iii*) Xerosis of cornea.
(*iv*) Angular conjunctivitis.

(*c*) Marked anaemia.

(*d*) (*i*) Red and/or raw tongue; Glazed toungue ;
Stomatitis.

(*ii*) Bleeding gums.

(*e*) Dental caries.

(*f*) Dry and /or rough skin.
Hyperkeratosis.
Crazy pavement epithelium.

(*g*) Oedema—localised or generalised.

(*h*) Tenderness of the Calf muscles.

Special remarks (if any) :—

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